



**STATE OF HAWAII  
DEPARTMENT OF HEALTH**  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

In reply, please refer to:  
File:

**08005PCH.21b**  
**DATE: August 12, 2021**  
**NPDES PERMIT NO. HI 0110086**

**FACT SHEET: MAJOR MODIFICATION TO THE NATIONAL POLLUTANT  
DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND ZONE  
OF MIXING (ZOM) TO DISCHARGE TO THE PACIFIC OCEAN,  
WATERS OF THE UNITED STATES**

**PERMITTEE: UNITED STATES DEPARTMENT OF THE NAVY  
NAVY REGION HAWAII**

**FACILITY: NAVFAC HAWAII WASTEWATER TREATMENT PLANT**

**FACILITY MAILING ADDRESS**

NAVFAC Hawaii WWTP  
400 Marshall Road, Bldg. 166  
JBPHH, Hawaii 96860  
Contact: Mrs. Debra Urasaki,  
WW Branch Manager  
Tel. No.: (808) 471-0076  
Email: debra.urasaki@navy.mil  
debra.i.urasaki@us.navy.mil

**PERMITTEE MAILING ADDRESS**

U.S. Department of the Navy  
Navy Region Hawaii  
850 Ticonderoga Street, Suite 110  
(Attn: N465)  
JBPHH, Hawaii 96860  
Contact: Director, Regional Env. Dept.  
Tel. No. (808) 471-3858

**FACILITY STREET ADDRESS**

NAVFAC Hawaii WWTP  
Fort Kamehameha Road and Seaman  
Avenue  
JBPHH, Hawaii 96853

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This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of the draft permit.

**A. Permit Information**

The following table summarizes administrative information related to the NAVFAC, Hawaii Wastewater Treatment Plant (hereinafter, facility).

**Table F-1. Facility Information**

<b>Permittee</b>	U.S. Department of the Navy Navy Region Hawaii
<b>Name of Facility</b>	NAVFAC Hawaii Wastewater Treatment Plant (WWTP)
<b>Facility Address</b>	Fort Kamehameha Road and Seaman Avenue Joint Base Pearl Harbor-Hickam (JBPHH), Hawaii 96853
<b>Facility Contact, Title, and Phone</b>	Debra Urasaki, WW Branch Manager (808) 471-0076
<b>Authorized Person to Sign and Submit Reports</b>	Director, Regional Environmental Department (808) 471-3858
<b>Mailing Address</b>	850 Ticonderoga Street, Suite 110 (Attn: N465) JBPHH, Hawaii 96860
<b>Billing Address</b>	Same as above
<b>Type of Facility</b>	Wastewater Treatment Plant
<b>Pretreatment Program</b>	Yes
<b>Reclamation Requirements</b>	No
<b>Facility Design Flow</b>	13 million gallons per day (MGD)
<b>Receiving Waters</b>	Outfall Serial No. 001: Mamala Bay Outfall Serial No. 002: Pearl Harbor
<b>Receiving Water Type</b>	Mamala Bay: Marine Pearl Harbor: Inland
<b>Receiving Water Classification</b>	Mamala Bay: Class A Wet Open Coastal Water (HAR Section 11-54-06(b)(2)(B)) Pearl Harbor: Class 2, Inland Water and Estuary (HAR Section 11-54-5.1(b)(3))

1. NPDES Permit No. HI 0110086, including ZOM, became effective on October 7, 2011, and expired on September 6, 2016. The Permittee reapplied for an NPDES permit and ZOM on March 9, 2016. The NPDES permit and ZOM were administratively extended on September 23, 2016, effective September 6, 2016. The NPDES permit and ZOM were reissued on April 9, 2020, with an effective date of June 1, 2020, and is set to expire on May 31, 2025.
2. On July 24, 2020, the Permittee submitted a request for a major modification.
3. The major modification is authorized under Hawaii Administrative Rules ("HAR"), Section 11-55-16 and 40 CFR Section 122.62(a)(2). In accordance with 40 CFR

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Section 124.5(c)(2), only the modification of certain conditions is being reopened as follows:

- 1) Removing the nitrate + nitrite nitrogen effluent limits, nitrate + nitrite nitrogen monitoring requirements, and dilution study necessity and nitrate + nitrite nitrogen study requirements pursuant to DOH's new implementation procedure and 40 CFR Section 122.62(a)(2);
- 2) Including data reporting requirements for sample results below the laboratory's Method Detection Limit pursuant to DOH's new implementation procedure and 40 CFR Section 122.62(a)(2);
- 3) Removing Zone of Initial Dilution and Zone of Mixing limits pursuant to DOH's new implementation procedure, which is to assess compliance with applicable water quality standards at "end-of-pipe" rather than within the receiving water and 40 CFR Section 122.62.(a)(2);
- 4) Revising the Annual Receiving Water Monitoring Report ocean bottom information frequency from annual to once a permit term pursuant to 40 CFR 122.62(a)(2); and
- 5) Revising Special Sampling of Surface Waters requirements consistent with HAR 11-62 and 40 CFR 122.62.(a)(2).

The expiration of the modified permit shall remain as May 31, 2025.

4. The Director of Health (hereinafter Director) has included in the modified permit those terms and conditions which are necessary to carry out the provisions of the Federal Water Pollution Control Act (P.L. 92-500), Federal Clean Water Act (CWA) (P.L. 95-217) and Chapter 342D, Hawaii Revised Statutes.

## **B. Facility Setting**

### **1. Facility Operation and Location**

The NAVFAC Hawaii Wastewater Treatment Plant (Facility), formerly known as the Fort Kam Wastewater Treatment Plant, is owned and operated by the Permittee and located on Fort Kamehameha Road, on the southern portion of JBPHH. It is located near the entrance to Pearl Harbor on the south shore of the Island of Oahu. The facility provides advanced secondary wastewater treatment for the JBPHH Complex including Ford Island; the Ship Wastewater Collection Ashore Abatement System; U.S. Marine Corps Base, Camp Smith; Hawaii Air National Guard; and Navy, Air Force, and Coast Guard military family housing units.

The Facility's dry weather design flow capacity is 13 million gallons per day (MGD); peak flow capacity is 30 MGD. The Facility completed an expansion to its previous design capacity in 1997. Per the application and most current U.S. Environmental Protection Agency (EPA) Compliance Evaluation Inspection (CEI) Reports (February 4, 2016, February 27, 2014, and February 28, 2012): the JBPHH service area has a population of approximately 40,000 and hosts over 150 non-domestic sources internally regulated by the Navy; the WWTP also receives ships sanitary, ships bilge water, and oily wastewaters, specifically associated with ships services, ships repair, and aircraft services; and the WWTP treats on average 5.4 to 5.8 million gallons per day. Per the application, approximately 54% of the total wastewater volume treated is base domestic sewage; just over 33% is inflow/infiltration; 11% is from ships sanitary sewage; and the remaining 2% is made up of non-domestic and industrial process wastewater.

Two (2) sewer mains enter the Facility. One line conveys base domestic sewage, treated and untreated non-domestic wastewater, and ships sanitary wastewater from the JBPHH (Pearl Harbor Naval Base), various military housing areas, and the U.S. Pacific Command, Camp Smith. The second conveys domestic sewage and non-domestic wastewater from the JBPHH (Hickam Air Force Base), including the Hawaii Air National Guard. Wastewater comingles at the headworks of the WWTP.

The configuration of the Facility includes the following: headworks to screen raw wastewater (mechanical bar screens) to remove unwanted, non-organic products, such as cloth, rags, rocks, and debris; primary clarifiers to remove settleable solids (primary sludge) and vortex grit basin to remove heavy inorganic matter such as sand and cinder that are abrasive to downstream equipment; aeration/anoxic tanks to aerate (add oxygen), biologically convert (with

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microorganisms suspended and dissolved organic matter to settleable biomass (secondary sludge), and to control organisms that impede settling in the secondary clarifiers; secondary clarifiers to remove secondary sludge from the treated wastewater; traveling bridge sand filters to further remove particulate matter; ultraviolet (UV) disinfection channels with UV light banks to disinfect the effluent prior to discharge; dissolved air floatation sludge thickeners; anaerobic digesters to stabilize and condition both primary and secondary sludge prior to dewatering; and centrifuges to reduce water content of the digested and thickened sludge prior to disposal off site to the Navy's Biosolids Treatment Facility at Kalaeloa (formerly known as Barbers Point) where it is turned into compost. Sand filters are rehabilitated with chlorine no more frequently than annually.

The Discharger also completed an alternate energy upgrade project for uninterrupted power to the UV disinfection system (completed in January 2013). The alternate energy upgrade consists of a photo electric farm, a hydrogen farm, and wind mills. In the fall of 2013, the Discharger converted the chlorine contact basin to a Parshall flume for final effluent flow monitoring.

The Navy has been implementing a sewer discharge permit system to control discharges into the WWTP. In 1989, the Commander of the Navy Region Hawaii issued COMNAVREG Instruction 11345.5 establishing a sewer discharge permit system for industrial wastewaters into the JBPHH sewer service area. In 2013, the Commander of the Navy Region Hawaii issued COMNAVREG Instruction 11345.2D establishing wastewater discharge limitations for industrial wastewaters into the JBPHH sewer service area. Under the authority of the COMNAVREG Instructions, NAVFAC has been issuing wastewater discharge certificates to each non-domestic source establishing the specific terms allowing discharge of non-domestic wastewater into the domestic sewers. See Section G.4.a. below.

In the 2015 Annual Report for the NAVFAC HI WWTP, it was noted that 158 non-domestic industrial users discharge to the Facility. Under the authority of the COMNAVREG Instructions 11345.2D and 11345.5, the Navy issues industrial wastewater discharge certificates to each source establishing the specific terms allowing discharge of industrial wastewater into the domestic sewers, much like a permit issued by a municipal pretreatment program.

NAVFAC also has three treatment facilities from which the industrial wastewaters discharge into the NAVFAC sewers.

**1) Industrial Waste Treatment Complex (IWTC), Building 1424**

NAVFAC handles industrial wastewaters in the Building 1424 IWTC. All wastewaters arrive at the IWTC by tanker truck or by trucked delivery of drums to two receiving bays and include wastewaters such as hydroblast tail water, acid wash waters, citrate rinse water, contaminated bilge water, wash rack wastewater, dock water with paint chips, equipment hydrotesting water, etc. The IWTC provides batch metals removals, solids removal, oil removal, and organics destruction. NAVFAC conducts jar tests of incoming deliveries to determine the necessary reaction and end points. A NAVFAC Certificate establishes a compliance sample point after final sand filtration at the IWTC.

**2) Bilge Oily Wastewater Treatment System (BOWTS), Building 1910**

NAVFAC handles oily wastewaters including ships bilge, ships ballast, tank farm drainage, compensating water, and sonar dome water in the Building 1910 BOWTS. Oily wastewaters arrive at the BOWTS either by dedicated bilge sewer line, tanker truck, or by barge to bilge sewer line connection. The BOWTS consists of a 1.6-million-gallon equalization treatment unit and two parallel chemical treatment units. The equalization tank is internally portioned into thirds where the compartments are filled one at a time in sequence with floating oils skimmed to an unused compartment. Decant proceeds from the equalization tank to the chemical treatment units which provide oil water separation, peroxide oxidation of sulfides, caustic and polymer-aided flocculation, and induced air floatation removal of coalesced oil. Once a year the skimmed oils are delivered by tanker truck to the Building 1403 Fuel Oil Reclamation Center. A NAVFAC Certificate establishes a compliance sample point at the ends of each chemical treatment unit.

**3) Fuel Oil Reclamation Center (FORC), Building 1403**

NAVSUP FLC Pearl Harbor processes for reclaim accumulated petroleum products (not used oil) from ships, shipyard shops, accumulation pits, tank bottoms from the Red Hill and Upper Tank Farm, and Hotel pier sump drainage in the Building 1403 FORC. Accumulated petroleum products arrive by vacuum truck for delivery into the FORC reclaim pit. Sump drainage from the Hotel pier is also pumped to the FORC. Each delivery is tested with clean fuels recovered as fuel stock, and contaminated or water-logged petroleum drained to the reclaim pit. The decant is treated in 26,000-gallon batches. The FORC consist of a reclaim pit and two tanks for skimming and storage, oil water separator, DAF tank, and final filtration.

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Currently, the DAF unit is not operated as designed since there is no DAF float removal, but rather a reliance on final filtration to remove solids. A NAVFAC Certificate establishes a compliance sample point after cartridge filtration.

Treated effluent from the Facility is discharged through a deep ocean outfall (Outfall Serial No. 001). This outfall discharges treated effluent into Mamala Bay, classified as a Class A, Open Coastal Marine Water. The outfall is a 42-inch diameter HDPE, concrete and ductile iron pipe, approximately 13,000 feet (ft) long, and discharges at a depth of approximately 150 ft (46 meters, m) through a 650 ft (200 m) long diffuser. The start of the diffuser is located at Latitude 21°17'42.68753"N and Longitude 157°57'9.71793"W. The diffuser ends at Latitude 21°17'40.16908"N and Longitude 157°57'4.21209"W.

Storm water associated with industrial activity from the Facility is discharged into Pearl Harbor through Outfall Serial No. 002 at Latitude 21°19'37"N and Longitude 157°57'52"W.

Figure 1 of the draft permit provides a map showing the location of the facility. Figure 2 of the draft permit provides a map of the ZOM. Figure 3 of the draft permit provides a map of the ZOM and the Zone of Initial Dilution (ZID). Figure 4 of the draft permit provides a facility site and drainage map.

## **2. Receiving Water Classification**

Mamala Bay is designated as a "Class A, Open Coastal Marine Water" under Section 11-54-6(b)(2)(B), Hawaii Administrative Rules (HAR). Protected beneficial uses of Class A waters include recreation, aesthetic enjoyment, and the protection and propagation of fish, shellfish, and wildlife.

Pearl Harbor is designated as a "Class 2, Inland Water and Estuary." The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters.

## **3. Ocean Discharge Criteria**

The Director has considered the Ocean Discharge Criteria, established pursuant to Section 403(c) of the CWA for the discharge of pollutants into the territorial sea, the waters of the contiguous zone, or the oceans. The United States Environmental Protection Agency (EPA) has promulgated regulations for Ocean



Discharge Criteria in 40 Code of Federal Regulations (CFR) Part 125, Subpart M. The Director has determined that the discharge will not cause unreasonable degradation to the marine environment. Based on current information, the Director proposes to issue a permit.

#### **4. Impaired Water Bodies on CWA 303(d) List**

CWA Section 303(d) requires states to identify specific water bodies where water quality standards (WQSs) are not expected to be met after implementation of technology-based effluent limitations on point sources.

On October 22, 2014, the EPA approved the 2014 State of Hawaii Water Quality Monitoring and Assessment Report, which includes the 2014 303(d) List of Impaired Water Bodies in the State of Hawaii.

The 2014 State of Hawaii Water Quality Monitoring and Assessment Report shows attainment of TN, N+N, NH<sub>4</sub>, TP, turbidity, and Chl a at the Mamala Bay (Fort Kamehameha Offshore) Station. At present, no TMDLs have been established for this waterbody.

Mamala Bay is also listed in the 2014 State of Hawaii Water Quality Monitoring and Assessment Report as impaired for total nitrogen and chlorophyll a at the Mamala Bay (Oceanic) Station. At present, no TMDLs have been established for this waterbody. HAR Section 11-54-6(c)(1) defines oceanic waters as: "All other marine waters outside of the 183 meter (600 feet or 100 fathom) depth contour." The Facility's deep ocean outfall is at a depth of 46 m (151 feet). Therefore, the Mamala Bay (Oceanic) Station does not apply to the Facility.

The third and last listing of Mamala Bay in the 2014 State of Hawaii Water Quality Monitoring and Assessment Report shows that it is in attainment for enterococcus, TN, N+N, NH<sub>4</sub>, TP, turbidity, and Chl a at the Mamala Bay (Sand Island Offshore) Station. The Facility's deep ocean outfall is approximately 3.4 miles away from the Mamala Bay (Sand Island Offshore) Station and approximately 2.5 miles away from the Sand Island Wastewater Treatment Plant ZOM. Based on the distance from the Mamala Bay (Sand Island Offshore) Station, it cannot be concluded that the Mamala Bay (Sand Island Offshore) station data is representative of the water quality near the Facility's ZOM.

Pearl Harbor is listed in the 2014 State of Hawaii Water Quality Monitoring and Assessment Report as impaired for total nitrogen, total phosphorus, and Chl a. Pearl Harbor – harbor waters and near shore waters to 30' from Keehi Lagoon to Oneula Beach is listed as impaired for TN, N+N, TP, turbidity, TSS, and PCBs.

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The TMDL process is in progress for the Pearl Harbor watershed, and a TMDL which specifies WLAs applicable to the Facility has not been approved by the EPA.

## 5. Summary of Existing Effluent Limitations

### a. Existing Effluent Limitations and Monitoring Data – Outfall Serial No. 001

Effluent limitations contained in the existing permit for discharges from Outfall Serial No. 001 and representative monitoring data from January 2011 through May 2016, are presented in the following table.

**Table F-2. Historic Effluent Limitations and Monitoring Data – Outfall Serial No. 001**

Parameter	Units	Effluent Limitation				Reported Data <sup>1</sup>		
		Average Annual	Average Monthly	Average Weekly	Maximum	Average Monthly	Average Weekly	Maximum
Flow	MGD	<sup>2</sup>				6.8	10.7	--
Biochemical Oxygen Demand (5-Day)	mg/L	--	30	45	--	3	4	--
	lbs/day	--	3,300	4,900	--	126	162	--
	% Removal	--	Report	--	--	96 <sup>3</sup>	--	
Total Suspended Solids	mg/L	--	30	45	--	4.2	8.7	--
	lbs/day	--	3,300	4,900	--	197	545	--
	% Removal	--	Report	--	--	95 <sup>3</sup>		
pH	standard units	--	--	--	Not less than 6.0 nor greater than 9.0 <sup>4</sup>	--	--	6.3 – 8.0
Settleable Solids	ml/L	--	1	--	2 <sup>4</sup>	0.7	--	7.0 <sup>5</sup>
Enterococci <sup>6</sup>	CFU/100 mL	--	35	--	--	7	--	--
Oil and Grease	mg/L	--	--	--	10 <sup>4</sup>	--	--	10.7
Total Nitrogen <sup>6</sup>	mg/L	16.65	--	--	--	9.59	--	--
Ammonia Nitrogen <sup>6</sup>	mg/L	0.39	--	--	--	0.47	--	--
Nitrate + Nitrite Nitrogen <sup>6</sup>	mg/L	<sup>2</sup>	--	--	--	8.81	--	--
Total Phosphorus <sup>6</sup>	mg/L	2.22	--	--	--	1.48	--	--
Total Residual Chlorine	mg/L	--	--	--	0.83	--	--	0.17
Copper	µg/l	--	--	--	Report <sup>7</sup>	--	--	7.0
Lead	µg/l	--	--	--	Report <sup>7</sup>	--	--	0.1
Mercury	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Selenium	µg/l	--	--	--	Report <sup>7</sup>	--	--	0.5

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Parameter	Units	Effluent Limitation				Reported Data <sup>1</sup>		
		Average Annual	Average Monthly	Average Weekly	Maximum	Average Monthly	Average Weekly	Maximum
Silver	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Cyanide	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
4,4-DDD (metabolite TDE)	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Dieldrin	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Tributyltin	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
2,3,7,8-TCDD (Dioxin)	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Polynuclear Aromatic Hydrocarbons (PAHs)	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Polychlorinated biphenyls (PCBs)	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Remaining Total Toxic Organics (excluding Asbestos)	µg/l	--	--	--	Report <sup>7</sup>	--	--	ND
Chronic Toxicity – <i>Ceriodaphnia dubia</i>	TUc	--	--	--	111	--	--	55.6
Chronic Toxicity - <i>Tripneustes Gratilla</i>	TUc	--	--	--	<sup>8</sup>	--	--	444

- <sup>1</sup> Source: Monthly DMR's submitted by the Permittee from June 2011 through May 2016, January 2011 through December 2015 (toxics), and NPDES permit renewal application dated March 9, 2016. Represents highest reported value over the monitoring period specified.
- <sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.
- <sup>3</sup> Represents the minimum reported percent removal.
- <sup>4</sup> Daily sampling.
- <sup>5</sup> Per DMR, settleable solids value of 7 ml/l on 8/23/12 likely due to sampling error. TSS in composite effluent was 1.9 mg/L that day and in-house settleable solids for each of the three shifts were less than 0.5 ml/l.
- <sup>6</sup> Geometric mean.
- <sup>7</sup> Annual sampling.
- <sup>8</sup> The chronic toxicity discharge limitation of 111 TUc listed in Part A.1 of the previous permit does not apply to monitoring results for toxicity tests using *Tripneustes gratilla*.

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**b. Existing Internal Outfall Limitations and Monitoring Data – Outfall Serial No. 002I, 004I, 005I, 010I, 013I, 008I, 012I, 020I, 021I, 022I, 023I, 024I, 025I, 026I, and 014I**

Internal outfall limitations contained in the existing permit for discharges from various internal outfalls and representative monitoring data from April 2011 through March 2016, are presented in the following tables.

**Table F-3. Historic Effluent Limitations and Monitoring Data – Outfall Serial Nos. 002I, 004I, 005I, 010I, and 013I**

Parameter	Units	Effluent Limitation		Reported Data <sup>1</sup>				
				002I	004I	005I	010I	013I
Flow	GPD	<sup>2</sup>		500	270	450	5,000	20,000
Total Cadmium	mg/l	Quarterly Average	0.26	ND	ND	ND	ND	ND
		Daily Max	0.69	ND	ND	ND	ND	ND
Total Chromium	mg/l	Quarterly Average	1.71	ND	1.38	ND	ND	ND
		Daily Max	2.77	ND	1.38	ND	ND	ND
Total Copper	mg/l	Quarterly Average	2.07	2.02	1.98	ND	0.36	1.24
		Daily Max	3.38	2.02	1.98	ND	0.54	1.24
Total Lead	mg/l	Quarterly Average	0.43	ND	ND	ND	ND	0.12
		Daily Max	0.69	ND	ND	ND	ND	0.12
Total Nickel	mg/l	Quarterly Average	2.38	2.01	1.76	ND	ND	1.28
		Daily Max	3.98	2.01	1.76	ND	ND	1.28
Total Silver	mg/l	Quarterly Average	2.38	ND	ND	ND	ND	ND
		Daily Max	3.98	ND	ND	ND	ND	ND
Total Zinc	mg/l	Quarterly Average	1.48	0.22	0.43	0.52	0.65	1.09
		Daily Max	2.61	0.22	0.43	0.52	0.65	1.69
Total Cyanide	mg/l	Quarterly Average	0.65	ND	ND	ND	ND	ND
		Daily Max	1.20	ND	ND	ND	ND	ND
Total Toxic Organics	mg/l	Daily Max	2.13	0.04	ND	0.04	1.14	ND

<sup>1</sup> Source: Monthly DMR's submitted by the Permittee from April 2011 through March 2016 and NPDES permit renewal application dated March 9, 2016. Represents highest reported value over the monitoring period specified.

<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

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**Table F-4. Historic Effluent Limitations and Monitoring Data – Outfall Serial Nos. 008I, 012I, 020I, 021I, 022I, 023I, 024I, 025I, and 026I**

Parameter	Units	Effluent Limitation		Reported Data <sup>1</sup>								
				008I	012I	020I	021I	022I	023I	024I	025I	026I
Flow	GPD	<sup>2</sup>		3,000	400	7,500	3,600	12	270	3,000	4,000	12,000
Total Cadmium	mg/l	Quarterly Average	0.07	ND	ND	0.008	0.07	0.003	0.0004	0.08	0.01	0.002
		Daily Max	0.11	ND	ND	0.008	0.07	0.003	0.0004	0.08	0.01	0.002
Total Chromium	mg/l	Quarterly Average	1.71	ND	ND	0.008	0.07	0.002	0.002	0.02	0.03	0.003
		Daily Max	2.77	ND	ND	0.008	0.07	0.002	0.002	0.02	0.03	0.003
Total Copper	mg/l	Quarterly Average	2.07	ND	ND	0.02	0.2	0.21	0.21	0.06	0.15	0.05
		Daily Max	3.38	ND	ND	0.02	0.2	0.21	0.21	0.06	0.15	0.05
Total Lead	mg/l	Quarterly Average	0.43	ND	ND	0.002	0.13	0.004	0.005	0.004	0.02	0.1
		Daily Max	0.69	ND	ND	0.002	0.13	0.004	0.005	0.004	0.02	0.1
Total Nickel	mg/l	Quarterly Average	2.38	ND	ND	0.01	0.09	0.007	0.01	0.2	0.02	0.02
		Daily Max	3.98	ND	ND	0.01	0.09	0.007	0.01	0.2	0.02	0.02
Total Silver	mg/l	Quarterly Average	0.24	ND	ND	0.001	0.0009	ND	0.06	0.03	0.003	0.0005
		Daily Max	0.43	ND	ND	0.001	0.0009	ND	0.06	0.03	0.003	0.0005
Total Zinc	mg/l	Quarterly Average	1.48	0.1	0.39	0.13	0.47	0.42	0.12	0.1	0.42	0.06
		Daily Max	2.61	0.1	0.39	0.13	0.47	0.42	0.12	0.1	0.42	0.06
Total Cyanide	mg/l	Quarterly Average	0.65	ND	ND	0.04	0.007	0.009	0.04	0.005	0.007	0.005
		Daily Max	1.20	ND	ND	0.04	0.007	0.009	0.04	0.005	0.007	0.005
Total Toxic Organics	mg/l	Daily Max	2.13	0.03	1.1	ND	1.57	2.37	3.36	0.28	0.08	ND

<sup>1</sup> Source: Monthly DMR's submitted by the Permittee from April 2011 through March 2016 (October 2011 through March 2016 for Hickam outfalls 020I through 026I) and NPDES permit renewal application dated March 9, 2016. Represents highest reported value over the monitoring period specified.

<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

**Table F-5. Historic Effluent Limitations and Monitoring Data – Outfall Serial No. 014I**

Parameter	Units	Effluent Limitation	Reported Data <sup>1</sup>
			014I
Flow	GPD	<sup>2</sup>	19,400

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Parameter	Units	Effluent Limitation		Reported Data <sup>1</sup>
				014I
Total Cadmium	mg/l	Quarterly Average	0.21	0.001
		Daily Max	0.54	0.001
Total Chromium	mg/l	Quarterly Average	1.71	0.007
		Daily Max	2.77	0.007
Total Copper	mg/l	Quarterly Average	2.07	0.44
		Daily Max	3.38	0.44
Total Lead	mg/l	Quarterly Average	0.43	0.02
		Daily Max	0.69	0.02
Total Nickel	mg/l	Quarterly Average	2.38	0.23
		Daily Max	3.98	0.23
Total Silver	mg/l	Quarterly Average	0.24	ND
		Daily Max	0.43	ND
Total Zinc	mg/l	Quarterly Average	1.48	0.58
		Daily Max	2.61	0.58
Total Cyanide	mg/l	Quarterly Average	0.65	0.006
		Daily Max	1.20	0.006
Total Toxic Organics	mg/l	Daily Max	2.13	1.53

<sup>1</sup> Source: Monthly DMR's submitted by the Permittee from April 2011 through March 2016 and NPDES permit renewal application dated March 9, 2016. Represents highest reported value over the monitoring period specified.

<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

**c. Existing Storm Water Limitations and Monitoring Data – Outfall Serial No. 002**

Storm water limitations contained in the existing permit for discharges from Outfall Serial No. 002 are presented in the following table. There were no discharges of storm water to Outfall Serial No. 002 reported during the term of the previous permit; therefore, no monitoring data is available.

**Table F-6. Historic Storm Water Limitations and Monitoring Data – Outfall Serial No. 002**

Parameter	Units	Effluent Limitation
Flow	MGD	1

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Parameter	Units	Effluent Limitation
Biochemical Oxygen Demand (5-Day)	mg/L	1
Chemical Oxygen Demand	mg/L	1
Total Suspended Solids	mg/L	1
Total Phosphorus	mg/L	1
Total Nitrogen	mg/L	1
Nitrate Plus Nitrite Nitrogen	mg/L	1
Oil and Grease	mg/L	15
pH	standard units	6.8 – 8.8
Enterococcus Bacteria	CFU/100 mL	89

<sup>1</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

## 6. Compliance Summary

- a. Effluent Limitation Exceedances.** The following table lists effluent limitation exceedances as identified in the monthly and annual DMRs submitted by the Permittee from June 2011 through May 2016, April 2011 through March 2016 (toxics), and permit application.

**Table F-7. Summary of Compliance History**

Outfall Serial No.	Monitoring Period	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
001	8/1/12-8/31/12	Daily Max	Settleable Solids	7 <sup>1</sup>	2	ml/L
001	5/1/13 – 5/31/13	Geomean	Ammonia Nitrogen	0.47	0.39	mg/L
001	6/1/13 – 6/30/13	Geomean	Ammonia Nitrogen	0.43	0.39	mg/L
001	10/1/15-10/31/15	Daily Max	Oil and Grease	10.7	10	ml/L
022I	4/1/12 – 6/30/12	Daily Max	Total Toxic Organics	2.15	2.13	mg/L
022I	1/1/14 – 3/31/14	Daily Max	Total Toxic Organics	2.37	2.13	mg/L
023I	7/1/12 – 9/30/12	Daily Max	Total Toxic Organics	3.36	2.13	mg/L
023I	7/1/13 – 9/30/13	Daily Max	Total Toxic Organics	2.23	2.13	mg/L
024I	7/1/14 – 9/30/14	Quarterly Avg	Cadmium	0.08	0.07	mg/L

<sup>1</sup> Per DMR, settleable solids value of 7 ml/l on 8/23/12 likely due to sampling error. TSS in composite effluent was 1.9 mg/L that day and in-house settleable solids for each of the three shifts were less than 0.5 ml/l. All other reported values did not exceed the permit limitation for the period specified above.

**b. Inspections**

The Hawaii Department of Health, Clean Water Branch (CWB) with EPA Region 9 conducted a Compliance Evaluation Inspection (CEI) of the facility on April 19-20, 2012. Additional CEI inspections were conducted by the CWB and PG Environmental, LLC on February 28, 2012, February 27, 2014 and February 4, 2016.

The primary purpose of the 2012 CWB/PG inspection was to determine the accuracy and reliability of the Discharger's self-monitoring and reporting program. It was noted in the 2012 CWB/PG report that the main findings were:

- The discharger was not calibrating their flow meter at a frequency no less than the manufacturer's recommended intervals or every six (6) months (whichever comes first).
- The discharger did not document the pH sample collection time versus sample analysis time, therefore the inspectors could not verify if the on-site analyses are conducted within 15 minutes of sample collection.
- The discharger's reporting for pH was not consistent with the permit (monitoring pH was done more frequently than required by the permit, but not reported).
- Outfall Serial No. 002 was observed to be in need of cleaning and maintenance as sediment and debris accumulation were visible around the v-notch weir sampling location.

The primary purpose of the 2012 EPA inspection was to ensure compliance with the NPDES permit and Federal regulations covering the discharges of domestic and non-domestic wastewaters into waters of the U.S. The main findings of the CWB/EPA 2012 report were:

- The Navy continues to effectively control the generation, delivery, treatment, and disposal of all domestic and non-domestic wastewaters discharged into the NAVFAC-HI sewers. Treated discharges are consistently high in quality because of (1) tertiary treatment and nutrient removal, (2) the 2.5-mile ocean outfall, (3) segregated pre-treatment of oily wastewaters, (4) segregated pretreatment of process-related industrial wastewaters, and (5) effective internal controls of non-domestic sources.
- The resulting 2011-2012 sample record shows consistent compliance with NPDES permit limits at the WWTP for conventional pollutants, toxics, and nutrients, and near consistent compliance for whole effluent toxicity. It



shows consistent compliance in the quarterly samples for toxics at the internal outfalls, and 5-year geometric means for nutrients in the receiving waters that were well below Hawaii water quality standards.

The primary purpose of the 2014 inspection was to determine the accuracy and reliability of the Discharger's self-monitoring and reporting program. It was noted in the 2014 report that the main findings were:

- The discharger was not accurately summarizing the inspections and monitoring of the non-domestic facilities in the annual report submittal.
- The discharger was not conducting annual site inspections consistent with the requirements of their SWPCP.
- The discharger exceeded the chronic toxicity threshold value for *Tripteneustes Gratilla* on multiple occasions.
- The discharger exceeded the ammonia nitrogen geometric mean effluent limitation.
- The discharger could not substantiate the reported flows contained in the DMRs.
- The discharger's reporting for pH was not consistent with the permit (monitoring pH was done more frequently than required by the permit, but not reported).

The primary purpose of the 2016 inspection was to determine the accuracy and reliability of NAVFAC's reporting, focusing on the assessment of NAVFAC's efforts to regulate nondomestic discharges to the WWTP. Findings in the draft report include:

- An exceedance of the oil and grease permit limit.
- Inspection reports did not contain the information required by permit conditions.
- Potential applicability to 40 CFR 437 centralized waste treatment categorical regulations depending on the determination if wastes are considered to be received from "off-site."

Recommendations included:

- Evaluation of the Internal Outfall Program (IOP) to determine which areas need to be strengthened in order to implement the proper legal authority to take enforcement action against noncompliant industrial users.
- Ensuring proper standard operating procedures (SOPs) in place to create standardized procedure for conducting inspections, sampling industrial users, reviewing data, and other activities necessary for the operation of the IOP.

- Due to potential changes over time, evaluation of COMNAVREG Hawaii Instruction 11345.2D (Internal Outfall Limits) to determine whether they are sufficient to control nondomestic wastewater discharges to maintain Best Available Technology (BAT).
- Establish SOPs for IU inspections include more detail in the inspection reports, and add photographs.
- Design and implement SOPs for confirming and ensuring Oily Waste Systems are properly maintained so the wastewater is properly treated prior to discharging to the FOTW and evaluate the IU self-reporting program to assess efficacy of this process.
- Improve and strengthen oversight and regulation of batch discharges from the shipyard to adequately regulate these non-customary discharges (which may have the characteristics of a slug discharge).

## **7. Planned Changes**

There are no planned changes expected during the term of the draft permit.

## **C. Applicable Plans, Policies, and Regulations**

### **1. Hawaii Administrative Rules, Chapter 11-54**

On November 12, 1982, the Hawaii Administrative Rules, Title 11, Department of Health, Chapter 54 became effective (hereinafter HAR Chapter 11-54). HAR Chapter 11-54 was amended and compiled on October 6, 1984; April 14, 1988; January 18, 1990; October 29, 1992; April 17, 2000; October 2, 2004; June 15, 2009; October 21, 2012; December 6, 2013; and the most recent amendment was on November 15, 2014. HAR Chapter 11-54 establishes beneficial uses and classifications of state waters, the state antidegradation policy, zones of mixing standards, and water quality criteria that are applicable to the Pacific Ocean.

Requirements of the draft permit implement HAR Chapter 11-54.

### **2. Hawaii Administrative Rules, Chapter 11-55**

On November 27, 1981 HAR Title 11, Department of Health, Chapter 55 became effective (hereinafter HAR Chapter 11-55). HAR Chapter 11-55 was amended and compiled on October 29, 1992; September 22, 1997; January 6, 2001; November 7, 2002; August 1, 2005; October 22, 2007; June 15, 2009; October 21, 2012; December 6, 2013; and the most recent amendment was on November 15, 2014. HAR Chapter 11-55, establishes standard permit conditions and requirements for NPDES permits issued in Hawaii.

Requirements of the draft permit implement HAR Chapter 11-55.

### 3. State Toxics Control Program

NPDES Regulations at 40 CFR 122.44(d) require permits to include water quality-based effluent limitations (WQBELs) for pollutants, including toxicity, that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an exceedance of a WQS. The *State Toxics Control Program: Derivation of Water Quality-Based Discharge Toxicity Limits for Biomonitoring and Specific Pollutants* (hereinafter, STCP) was finalized in April 1989, and provides guidance for the development of water quality-based toxicity control in NPDES permits by developing the procedures for translating WQSs in HAR Chapter 11-54, into enforceable NPDES permit limitations. The STCP identifies procedures for calculating permit limitations for specific toxic pollutants for the protection of aquatic life and human health.

Guidance contained in the STCP was used to determine effluent limitations in the draft permit.

### D. Rationale for Effluent Limitations and Discharge Specifications

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. NPDES regulations establish two (2) principal bases for effluent limitations. At 40 CFR 122.44(a), permits are required to include applicable technology-based limitations and standards; and at 40 CFR 122.44(d), permits are required to include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. When numeric water quality objectives have not been established, but a discharge has the reasonable potential to cause or contribute to an excursion above a narrative criterion, WQBELs may be established using one (1) or more of three (3) methods described at 40 CFR 122.44(d) – 1) WQBELs may be established using a calculated water quality criterion derived from a proposed state criterion or an explicit state policy or regulation interpreting its narrative criterion; 2) WQBELs may be established on a case-by-case basis using EPA criteria guidance published under CWA Section 304(a); or 3) WQBELs may be established using an indicator parameter for the pollutant of concern.

## **1. Technology-Based Effluent Limitations**

### **a. Scope and Authority**

Section 301(b) of the CWA and implementing EPA permit regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable WQSs. The discharge authorized by this permit must meet minimum federal technology-based requirements based on Secondary Treatment Standards in accordance with 40 CFR 133.

Regulations promulgated in 40 CFR 125.3(a)(1) require technology-based effluent limitations for municipal dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for publicly owned treatment works (POTWs) [defined in section 304(d)(1)]. CWA Section 301(b)(1)(B) requires that such treatment works must, at a minimum, meet effluent limitations based on secondary treatment as defined by the EPA Administrator.

Based on this statutory requirement, EPA developed secondary treatment regulations, which are specified in 40 CFR 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), and pH.

### **b. Applicable Technology-Based Effluent Limitations**

**(1)** At 40 CFR 133 in the Secondary Treatment Regulations, EPA has established the minimum required weekly and monthly average level of effluent quality attainable by secondary treatment shown in Table F-8 below. The standards in Table F-8 are applicable to the facility and therefore established in the draft permit as technology-based effluent limitations.

**Table F-8. Applicable Technology-Based Effluent Limitations**

Parameter	Units	30-Day Average	7-Day Average
BOD <sub>5</sub> <sup>1</sup>	mg/L	30	45
TSS <sup>1</sup>	mg/L	30	45
pH	standard units	6.0 – 9.0	

<sup>1</sup> The 30-day average percent removal shall not be less than 85 percent.

As allowed under 40 CFR 133.103(d), the previous permit imposed mass-based effluent limits based on the maximum dry weather flow capacity of 13 MGD in lieu of the percent removal requirements. 40 CFR 133.103(d) allows this substitution of a mass loading limit for the percent removal requirements provided that the Permittee satisfactorily demonstrates that: (1) the treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater (emphasis added), (2) to meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards, and (3) the less concentrated influent wastewater is not the result of excessive Infiltration/Inflow. A review of the monthly effluent data from January 2011 through May 2016 shows that the minimum percent removal for BOD was 96% and the minimum TSS percent removal was 95%. As the data over the last permit term shows that the 85% removal requirements are being met, 40 CFR 133.103(d) is not applicable and the 85% removal requirements have been incorporated into the draft permit.

- (2)** Under 40 CFR 433.10(a), the metal finishing regulations apply to facilities that perform electroplating, electroless plating, anodizing, coating, chemical etching, or printed circuit board manufacturing. If any of these six (6) operations exists, then regulations also apply to all associated process operations including cleaning, machining, tumbling, abrasive jet machining, sand blasting, plasma arc machining, flame spraying, solvent degreasing, paint stripping, painting, assembly, calibration, and testing. The April 19-20, 2012 EPA CEI inspection stated that the Navy performs copper and nickel plating in Building 67, alodining in Building 67 (a form of chemical coating), deoxidation, acid etching, and desmut in Building 67, acid cleaning in Building 1456, and acid cleaning and deoxidation dockside at the graving docks (all forms of chemical etching). As such, the metal finishing regulations are applicable. In accordance with 40 CFR 122.45(h), the use of internal outfalls is allowed when it is

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infeasible or impractical to apply permit effluent limitations or standards at the point of discharge. Because of the relatively small flow volume discharged from these regulated sources, as compared to the total flow through the Facility, monitoring for compliance with applicable standards cannot be accomplished at the outfall for most parameters because the resulting effluent limitations would be well below analytical detection levels.

(a) The specific sources that would be subject to the metal finishing effluent limitation guidelines and standards are summarized in the following table:

**Table F-9: Sources Subject to Metal Finishing Standards**

<b>Internal Outfall Serial No.</b>	<b>Building Number</b>	<b>Process Description(s)<sup>2</sup></b>	<b>New (N) or Existing (E) Source<sup>1</sup></b>	<b>Discharge Status<sup>2</sup></b>
002I	67	Brush electroplating wastes	E	Active
004I <sup>3</sup>	155	Plasma-cut slag coolant Water jet-cut spends Water jet-cut overflow	E	No longer discharges to sewer system
005I	214	Hydrotest spends Paint wet-booth spends Transducer soapy wash	E	Active
008I	1456	Alodine/steam clean Hose/pipe flush Hydrotest	N	Active
010I	1670	Ships sanitary decon flush Teflon quench Hose hydrotest	E	Active
011I <sup>3</sup>	1725	Paint/spray booth spends	E	Operation shut down/closed
012I <sup>4</sup>	1770	Hose/flush/press test Mast/antenna hydrotest	N	Active
013I	JBPHH Drydock #1, #2, #3, #4	Hydroblast Sanitize flush Wet-sand blast	E	Active
014I	1424	NAVFAC HI Industrial Wastewater Treatment Complex (IWTC)	N/E	Active

<sup>1</sup> Operations that began prior to August 31, 1982, are considered existing sources, and operations that began after August 31, 1982, are considered new sources.

<sup>2</sup> Based on information provided by the Permittee in the NPDES application and most current CEI inspection reports.

<sup>3</sup> Internal Outfalls not included in draft permit. Internal Outfall 011I was not included in the previous permit due to shut down of operations.

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<sup>4</sup> Steam clean/ultrasonic, NDT magnaflux rinses, and brush electroplating wastes no longer discharge to the sewer system.

The specific metal finishing effluent limitations for existing discharges (specified in Part A.2.b. of the permit) from the buildings described in the table above are based on the best practicable control technology currently available (BPT) at 40 CFR 433.13(a), (b), and (c) and the best available treatment technology economically achievable (BAT) at 40 CFR 433.14(a), (b), and (c). The specific metal finishing effluent limitations for new dischargers in Part A.2.b. of the permit are based on the new source performance standards (NSPS) at 40 CFR 433.16(a), (b), and (c).

The BPT, BAT, and NSPS requirements at 40 CFR 433 establish standards for cadmium, chromium, copper, lead, nickel, silver, zinc, total toxic organics, total cyanide, and amenable cyanide (as an alternate for cyanide). These standards also include a prohibition against dilution as partial or total substitute for treatment to comply with the standards. The standards for toxic metals, total cyanide, and total toxic organics will be applied at the end of each process line, prior to mixing with other non-regulated flows in the Facility's collection system.

The BPT and NSPS requirements also establish standards for oil and grease, TSS, and pH. The Facility is designed to treat these pollutants and the 40 CFR 133 secondary treatment standards for TSS and pH (as discussed in Section D.1.b) and WQBELs for oil and grease (as discussed in Section D.2.g) are more conservative than or equivalent to the 40 CFR 433 metal finishing standards for these pollutants. Thus, the more conservative standards are applied at Outfall Serial No. 001.

**(b) Building No. 1424 IWTC – Combined Waste Stream Formula**

According to the Permittee and consistent with EPA report findings, Building No. 1424 IWTC (Internal Outfall Serial No. 014I) handles wastewaters generated and delivered from new and existing metal finishing operations and thus, the adjusted Federal standards for both new and existing source metal finishing must be applied to this building's treated discharge. Lower cadmium limits are the only difference between the new and existing source standards. The cadmium limits in Part A.2.b. of the permit were derived with the following combined waste stream formula (values were based on EPA Region 9 NPDES Compliance Evaluation Inspection Report No. 1).

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$$C_{total} = \frac{(C_{exist} \times Q_{exist}) + (C_{new} \times Q_{new})}{(Q_{exist} + Q_{new})} \times \frac{Q_{total} - Q_{dilution}}{Q_{total}}$$

Where:

C = concentration

Q = flow

$C_{exist}$  = Total cadmium existing source metal finishing standard  
= 0.26 mg/l (Quarterly Average)  
= 0.69 mg/l (Daily Maximum)

$C_{new}$  = Total cadmium new source metal finishing standard  
= 0.07 mg/l (Quarterly Average)  
= 0.11 mg/l (Daily Maximum)

$Q_{exist}$  = 9,900 gal/yr

$Q_{new}$  = 3,450 gal/yr

$Q_{dilution}$  = 0 gal/yr (No dilution waters are involved)

**(c) Building Nos. 1910, 1403, 5, and 3B**

According to the Permittee, all wastewaters associated with metal finishing standards that require treatment are sent to Building No. 1424, NAVFAC HI IWTC and are not accepted at the BOWTS (Building No. 1910). In addition, the Navy has stated that Building No. 1403 does not receive used oil from shops associated with the metal finishing categorical standards. The Permittee has also stated that wastewater from heat treat quench from Building No. 5 is disposed via Building No. 1663, Solid and Hazardous Waste Facility and there is no discharge from this operation into the Facility's sewer system. The metal finishing operations (hydrotest tail water) previously in Building No. 3B were moved to Building No. 1456 (as discussed in the previous permit fact sheet).

As in the previous permit, based on the information the Navy has provided, Building Nos. 1910, 1403, and 5 were not included as internal outfalls.

**(d) Non-Navy Internal Outfalls Removed**

In the current permit, seven (7) additional internal outfalls are identified (see table below). These outfalls (020I through 026I) were added to the current permit based on the transition of Hickam Air Force Base and Pearl Harbor to a joint installation on October 1, 2010. The previous Fact Sheet cites the EPA Region 9, NPDES Compliance Evaluation and Inspection Report No. 2 which indicates that if Hickam



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AFB and Pearl Harbor are realigned to be one facility with a unified command structure and function, Hickam AFB will qualify as a metal finisher subject to Federal standards for existing and new sources. Alone, the Air Force or the Air National Guard does not have any of the six (6) core metal finishing operations which would make them applicable to the metal finishing regulations, but was considered to be drawn into the metal finishing regulations when the bases joined, considering the 40 process operations that are also applicable if the facility has any of the six (6) core operations. The Permittee has requested to remove these internal outfalls based on the following:

**Table F-10: Non-Navy Internal Outfalls Removed**

<b>Internal Outfall Serial No.</b>	<b>Building Number</b>	<b>Process Description(s)</b>	<b>New (N) or Existing (E) Source</b>	<b>Discharge Status</b>
020I	2016H	Corrosion Control Aircraft Wash Rack	N	Active
021I	2030AH/BH	Aerospace Ground Equipment Repair Shop	N	Active
022I	2131H	Non Destructive Inspection Shop	N	Active
023I	3400H	Non Destructive Inspection Shop	N	Active
024I	3407H	Corrosion Control Wash Rack	N	Active
025I	2130H	Corrosion Control Hanger	N	Active
026I	4046	Clear Water Rinse Facility	N	Active

The 2005 Base Closure and Realignment Commission (BRAC) Report to the president required the relocation of installation support functions and the establishment of JBPHH. On October 1, 2010, Naval Base Pearl Harbor and Hickam Air Force Base were realigned to form JBPHH. Although the realignment has relocated the installation support functions (e.g., consolidated security, grounds maintenance, road maintenance, etc.) of Hickam AFB to Naval Station Pearl Harbor, and thus establishing JBPHH, the Permittee has stated that the Navy, Air Force, and Air National Guard continue to retain an independent organizational, operational, and financial authority for each respective entity. They each have specific missions (e.g., Navy – primary mission is to provide berthing and shore side support to surface ships and submarines, as well as maintenance and training; Air Force – primary mission is to plan, conduct and coordinate offensive and defensive air operations in the Pacific and Asian theaters, etc.) and per the renewal application, individual command structures and function as well as funding with regards to the Navy, Air Force and Air National Guard are still intact and they have been continuing operations as separate agencies. Similarly, other tenant commands exterior to the Navy on

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JBPHH operate under their respective command, operations, and budget.

In its renewal application, the Permittee has stated that

- Subsequent to the base realignment, they have learned that the function of the realignment was for purposes of consolidating base operations (i.e., security, grounds maintenance, road maintenance, etc.) and facility sustainment;
- Although the Navy is the landowner for the purposes of joint base, the Air Force and Air National Guard continue to retain an independent organization, operational, and financial authority for each respective entity; and
- The individual command structures and function as well as funding with regards to the Navy, Air Force and Air National Guard are still intact and operate as separate agencies.

And as such, the Navy should be considered as one entity, separate from other JBPHH Non-Navy commands.

This reasoning is in line with the December 15, 1986, memorandum regarding Application of Metal Finishing Pretreatment Requirements Under 40 CFR Part 433 to Alameda Naval Air Station from EPA Region 9 Assistant Regional Counsel to the Region 9 Pretreatment Coordinator, where it was concluded that the proper application of the Metal Finishing regulations to the Navy Air Station was to define it as a whole regulated entity where it is under the control of the Department of the Navy and all of its activities are related in that they all serve the basic purpose of the Station: to provide support for the Navy's air and sea operations.

Based on this information, the six (6) additional non-Navy processes are not considered under the metal finishing regulations and the associated internal outfalls were removed from the draft permit. These sources will continue to be regulated under the source control provisions (Industrial Wastewater Sewer Discharge Permit System Program) as they were prior to joint basing.

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**(e) Building 155, Internal Outfall No. 004I Removed**

In addition, Internal Outfall No. 004I, Building 155 has been removed from the draft permit. In the renewal application, the Permittee has stated that the regulated processes associated with this outfall no longer discharges to the sewer system. Per the application, there is no longer any discharge from the plasma cutting process as may have occurred in the past as that the plasma-cut slag coolant is a closed loop process resulting in no discharge to the sewer system. Also, the regulated process which involved a water jet cutting machine which discharged through Outfall No. 004I was replaced in 2014 with a closed loop machine which no longer is connected or discharges to the wastewater system.

**Table F-11: Other Internal Outfalls Removed**

<b>Internal Outfall Serial No.</b>	<b>Building Number</b>	<b>Process Description(s)</b>	<b>New (N) or Existing (E) Source</b>	<b>Discharge Status</b>
004I	155	Plasma-cut slag coolant Water jet-cut spents Water jet-cut overflow	E	No Longer Discharges to Sewer System

**(f) Building Nos. 214, 1456, and 1770**

For Internal Outfall No. 012I, Building No. 1770, the steam clean/ultrasonic process, NDT magnaflux rinse process and the brush electroplating do not have sewer discharges. Industrial wastewater from both steam cleaning and ultrasonic cleaning is collected in drums and transported to Building No. 1663, Hazardous Waste Facility and is subsequently turned over to the Defense Logistics Agency Disposition Services for appropriate disposal off base. Brush electroplating performed by personnel at Building No. 1770 is primarily performed on board vessels and wastewater is not generated. Absorbents are used to wipe residual liquid and the resulting waste is collected and turned over to Building No. 1663 for appropriate off-base disposal. These processes which no longer discharge to the sewer system will not require monitoring. However, Internal Outfall No. 012I is maintained in the draft permit as there are still other processes subject to the metal finishing regulations that discharge to this outfall, as explained below.

The renewal application also proposed removing the following processes:

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- Transducer hydrostatic testing -  
Internal Outfall No. 005I, Building No. 214;
- Valve and other component testing and certification -  
Internal Outfall No. 008I, Building No. 1456 and  
Internal Outfall No. 012I, Building No. 1770; and
- Mast and antenna hydrostatic testing -  
Internal Outfall No. 012I, Building No. 1770

as the Permittee does not believe that these processes are metal finishing processes and therefore, they have proposed that these processes should not be subject to Federal metal finishing standards.

Per the application, the transducer hydrostatic testing operation discharging into Internal Outfall No. 05I (Building No. 214) involves placing already manufactured transducers used on U.S. Naval ships in a hydrostatic test tank, filling the tank with Navy supplied fresh water, and performing the hydrostatic test. PHNSY & IMF performs no machining operation or any of the metal finishing processes listed on the transducers prior to the hydrostatic testing. Similarly, for the valve and other component testing and certification process that discharges to Internal Outfall No. 008I (Building No. 1456) and for the mast and antenna hydrostatic testing process that discharges at Internal Outfall No. 012I (Building No. 1770) the metal components undergoing testing are not manufactured at PHNSY & IMF. Most of these components are in use on Navy ships and as part of the maintenance cycle are removed from a ship for the testing by PHNSY & IMF. As such, the application states that the components undergoing the testing at these buildings are separate from the metal finishing processes performed at PHNSY & IMF. The application also states that the testing done at Building No. 214, Building No. 1456 and Building No. 1770 are not part of the manufacturing process as delineated by the EPA and shown in Figure 3-1 from EPA 440/1-83/091. Although the applicant has requested to remove the above processes from the permit, they have stated that Internal Outfalls No. 005I (Building No. 214) and 008I (Building No. 1456) should remain in the permit as there are other processes at these facilities that may not be clearly excluded from the metal finishing definition.

40 CFR §433.10 Applicability; description of the metal finishing point source category states:

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*“If any of those six operations are present, then this part applies to discharges from those operations and also to discharges from any of the following 40 process operations: Cleaning, Machining, ...Testing, ...”*

As stated above, it has been determined that there are several of the six (6) core operations present at this facility. As such, the metal finishing regulations are applicable to these core operations and also to any of the 40 specified ancillary processes. Regardless of whether the metal components undergoing testing are manufactured at PHNSY or IMF, the facility is performing a metal finishing operation that is covered under the metal finishing applicability requirements at 40 CFR 433.10(a), and thus, the metal finishing requirements are applicable to any of the core and ancillary processes identified. This reasoning is consistent with the September 26, 2000, memorandum from EPA Pacific Southwest Region to Ms. Anja Wendel regarding Coastal Instruments, Inc.; the December 15, 1986, memorandum regarding Application of Metal Finishing Pretreatment Requirements Under 40 CFR Part 433 to Alameda Naval Air Station from EPA Region 9 Assistant Regional Counsel to the Region 9 Pretreatment Coordinator; and the August 21, 1984, record of communication between EGD-HQ and EPA Region 6.

The EPA memorandum regarding Coastal Instruments concluded that although Coastal only performs process operations on old, used, or malfunctioning parts (does not engage in manufacturing), that Coastal, regardless of whether a service company or a manufacturer, it is performing a metal finishing operation that is covered under the metal finishing applicability requirements at 40 CFR 433.10(a) and under this provision, facilities performing one of the listed operations are subject to the metal finishing requirements.

Region 9 Assistant Regional Counsel concluded that the proper application of the Metal Finishing regulations to the Alameda Air Station was to define the Air Station as a whole as the regulated entity and thus, the Air Station's entire industrial waste stream is subject to the Metal Finishing regulations to the extent it derives from processes regulated under the Metal Finishing regulations.

The record of communication between EGD-HQ and EPA Region 6 concluded that even if at a facility, an electroplating process had a separate discharge from the remainder of the plant waste stream (which contained at least one of the 40 ancillary processes), both

waste streams would be regulated under the metal finishing regulations. As such, these process which are identified in 40 CFR 433.10(a) are maintained as being regulated under the draft permit.

- (3)** Under 40 CFR 4371(a)(1), the centralized waste treatment point source category regulations apply to that portion of wastewater discharges from a centralized waste treatment (CWT) facility that results from any of the following activities: (1) Treatment and recovery of hazardous or non-hazardous industrial metal-bearing wastes, oily wastes and organic bearing wastes received from off-site; and (2) The treatment of CWT wastewater. A CWT means any facility that treats (for disposal, recycling or recovery of material) any hazardous or non-hazardous industrial wastes, hazardous or non-hazardous industrial wastewater, and/or used material received from off-site. CWT facility includes both a facility that treats waste received exclusively from off-site and a facility that treats wastes generated on-site as well as waste received from off-site. On-site means within the boundaries of a facility. A facility may encompass land areas that are bisected by public thoroughfares but are under the control of a common owner. Off-site means outside the boundaries of a facility.

Based on the evaluation in Section D.1.b.(2) regarding the independent organizational, operational, and financial authority for each of the JBPHH entities (e.g., Navy, Air Force, Air National Guard, etc.), the Navy operations are considered as one regulated entity/facility (i.e., on-site) and all of the non-Navy operations/commands are considered as separate facilities (e.g., off-site). As such, the following determinations regarding CWT applicability were made:

- (a)** BOWTS – accepts oily wastewaters from the naval complex and wastewaters from the FORC which do not meet the pretreatment limitations for acceptance to the WWTP. The BOWTS also accepts oily wastewater from non-Navy vessels: Army (LSV), Coast Guard, and MSC vessels (Merchant Marines) as well as foreign ships (especially during RIMPAC). The bilge water collection system is located within the Naval complex so all oily wastewater is off-loaded on base. Although the BOWTS accepts non-Navy wastewaters, it accepts it on-site, therefore is not considered a CWT facility.
- (b)** IWTC – accepts industrial waste waters from the naval complex and dry docks, and Naval operations off-site from JBPHH. As it accepts off-site wastewaters it is considered a CWT facility. All treatment processes at the IWTC are there to treat wastewaters generated from

the Pearl Harbor Complex (on-base). Wastes from off-site operations are only treated at the IWTC if it is treatable by one of the established processes in place to treat on-base wastes.

- (c) FORC – accepts petroleum products (not used oil) from ships, shipyard shops, accumulation pits, tank bottoms from the Red Hill and Upper Tank Farm, Hotel pier sump drainage, and from Hickam Hydrant pits (fuel nozzle wastes). As it accepts off-site wastewaters it is considered a CWT facility. The wastewater from Hickam is rainwater that fills in the fueling nozzle pits and needs to be processed.

The following discharges of wastewaters are not applicable to the CWT regulations under 40 CFR §437.1(b):

- Wastewater from the treatment of wastes that are generated off-site if the discharger: ... (b) demonstrates that the off-site wastes are of similar nature and the treatment of such wastes are compatible with the treatment of non-CWT wastes generated and treated at the CWT.

Treatment of the wastewaters accepted at the IWTC and FORC that are generated off-site are considered similar in nature and the treatment of such wastes compatible with the treatment of non-CWT wastes generated and treated at the CWT. As such, the CWT regulations do not apply to the off-site wastewaters accepted at the IWTC and FORC.

- (4) Technology-based treatment requirements may be imposed on a case by case basis under Section 402(a)(1) of the Act, to the extent that EPA promulgated effluent limitations are inapplicable (i.e., the regulation allows the permit writer to consider the appropriate technology for the category or class of point sources and any unique factors relating to the applicant) [40 CFR 125.3(c)(2)]. The minimum levels of effluent quality attainable by secondary treatment for Settleable Solids, as specified in the EPA Region IX Policy memo dated May 14, 1979, are: 30-day average – 1 ml/l and Daily maximum – 2 ml/l. These limitations have been carried over from the previous permit.

## 2. Water Quality-Based Effluent Limitations (WQBELs)

### a. Scope and Authority

NPDES Regulations at 40 CFR 122.44(d) require permits to include WQBELs for pollutants, including toxicity, that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an exceedance of a WQS, including numeric and narrative objectives within a standard (reasonable potential). As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants “which the Director determines are or may be discharged at a level that will cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard.”

The process for determining reasonable potential and calculating WQBELs, when necessary, is intended to protect the receiving waters as specified in HAR Chapter 11-54. When WQBELs are necessary to protect the receiving waters, the DOH has followed the requirements of HAR Chapter 11-54, the STCP, and other applicable State and federal guidance policies to determine WQBELs in the draft permit.

Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established in accordance with the requirements of 40 CFR 122.44(d)(1)(vi), using (1) EPA criteria guidance under CWA Section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state’s narrative criterion, supplemented with other relevant information.

### b. Applicable Water Quality Standards

The beneficial uses and WQSs that apply to the receiving waters for this discharge are from HAR Chapter 11-54.

**(1) HAR Chapter 11-54.** HAR Chapter 11-54 specifies numeric aquatic life standards for 72 toxic pollutants and human health standards for 60 toxic pollutants, as well as narrative standards for toxicity. Effluent limitations and provisions in the draft permit are based on available information to implement these standards.

**(2) Water Quality Standards.** The facility discharges to Mamala Bay, which is classified as a marine Class A Wet Open Coastal Waters in HAR



Chapter 11-54. As specified in HAR Chapter 11-54, saltwater standards apply when the dissolved inorganic ion concentration is above 0.5 parts per thousand. As such, a reasonable potential analysis (RPA) was conducted using saltwater standards. Additionally, human health WQSs were also used in the RPA to protect human health. Where both saltwater standards and human health standards are available for a particular pollutant, the more stringent of the two will be used in the RPA.

40 CFR 122.45(c) requires effluent limitations for metals to be expressed as total recoverable metal. Since WQSs for metals are expressed in the dissolved form in HAR Chapter 11-54, factors or translators must be used to convert metal concentrations from dissolved to total recoverable. Default EPA conversion factors were used to convert the applicable dissolved criteria to total recoverable.

**(3) Receiving Water Hardness.** HAR Chapter 11-54 contains water quality criteria for six (6) metals that vary as a function of hardness in freshwater. A lower hardness results in a lower freshwater WQS. The metals with hardness dependent standards include cadmium, copper, lead, nickel, silver, and zinc. Ambient hardness values are used to calculate freshwater WQSs that are hardness dependent. Since saltwater standards are used for the RPA, the receiving water hardness was not taken into consideration when determining reasonable potential.

#### **c. Determining the Need for WQBELs**

NPDES regulations at 40 CFR 122.44(d) require effluent limitations to control all pollutants which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state WQS. Assessing whether a pollutant has reasonable potential is the fundamental step in determining whether or not a WQBEL is required. Using the methods prescribed in EPA's *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991), the effluent data from Outfall Serial No. 001 were analyzed to determine if the discharge demonstrates reasonable potential. The RPA compared the effluent data with numeric and narrative WQSs in HAR Chapter 11-54-4. To determine reasonable potential for nutrients contained in HAR Chapter 11-54-6, a direct comparison of the receiving water concentrations at the edge of the ZOM and at the edge of the ZID (for pollutants which a ZOM was not established, i.e., total nitrogen, ammonia nitrogen, and total phosphorus) was compared to the most stringent WQS.

- (1) Reasonable Potential Analysis (RPA).** The RPA for pollutants with WQS specified in HAR Chapter 11-54-4, based on the TSD, combines knowledge of effluent variability as estimated by a coefficient of variation with the uncertainty due to a limited number of data to project an estimated maximum receiving water concentration as a result of the effluent. The estimated receiving water concentration is calculated as the upper bound of the expected lognormal distribution of effluent concentrations at a high confidence level. The projected maximum receiving water concentration, after consideration of dilution, is then compared to the WQS in HAR Chapter 11-54, to determine if the pollutant has reasonable potential. The projected maximum receiving water concentration has reasonable potential if it cannot be demonstrated with a high confidence level that the upper bound of the lognormal distribution of effluent concentrations is below the receiving water standards.

Because the most stringent WQS for pollutants specified in HAR Chapter 11-54-6, are provided as geometric means and exceedances of these WQS are less sensitive to effluent variability, the RPA for pollutants in HAR Chapter 11-54-6, was conducted by doing a direct comparison of the maximum effluent concentration to the most stringent applicable WQS after consideration of dilution, where applicable.

- (2) Effluent Data.** The RPA was based on effluent monitoring data submitted to the DOH in DMRs from April 2011 through March 2016 (toxics), January 2011 through December 2015 (nutrients), and June 2011 through May 2016 (other pollutants) and data contained in the permit application.
- (3) Dilution.** The STCP discusses dilution, defined as the reduction in the concentration of a pollutant or discharge which results from mixing with the receiving waters, for submerged and high-rate outfalls. The STCP states that minimum dilution is used for establishing effluent limitations based on chronic criteria and human health standards for non-carcinogens, and average conditions is used for establishing effluent limitations based on human health standards for carcinogens.

The previous permit included a minimum initial dilution factor of 111:1 (seawater:effluent) provided at Outfall Serial No. 001 and does not establish a dilution at Outfall Serial No. 002. Documentation in the permit file states that this dilution was determined utilizing the EPA developed and approved model developed by Roberts, Snyder, and Baumgartner (RSB) with real-time receiving water data collected for the predictive modeling. In the analysis, several plume rise and dilution models were

calculated showing during the summer months yielded the most conservative dilution of 111:1.

EPA's *Initial Mixing Characteristic of Municipal Ocean Discharges* indicates that "worst-case" conditions be evaluated using a combination of conservative values for conditions affecting initial dilution. Although no average dilution was provided, using a minimum critical initial dilution of 111:1 for calculating effluent limitations for human health standards for carcinogens is more conservative than an average dilution and will still be protective of water quality. Therefore, because only a critical minimum initial dilution was used in the previous permit and a new dilution study has not been conducted, the DOH has determined use of the critical short-term initial dilution of 111:1 is protective of water quality for chronic and fish consumption criteria for non-carcinogens, and fish consumption criteria for carcinogens.

HAR Chapter 11-54-9 allows the use of a ZOM to demonstrate compliance with WQS. ZOMs consider initial dilution, dispersion, and reactions from substances which may be considered to be pollutants. However, due to other potential sources of pollutants into the receiving water, such as storm water runoff or unidentified discharges, it is often problematic to determine the cause of WQS exceedances in the receiving water at the edge of a ZOM. It is more practical to determine the available dilution provided in the ZOM and apply that dilution to the WQS to calculate an effluent limitation that can be applied end-of-pipe. However, an available dilution at the edge of the ZOM is not currently known for this discharge. Thus, for HAR Section 11-54-6(b)(3) parameters for which a ZOM has been established, reasonable potential to contribute to an exceedance of WQS is most reasonably assessed by comparing monitoring data at the edge of the ZOM to the applicable WQS. If an annual geometric mean at the edge of a ZOM exceeds the applicable WQS, the Permittee is determined to have reasonable potential for the pollutant. If an exceedance of WQS is not observed at the edge of the ZOM, it is assumed that sufficient dilution and assimilative capacity exists to meet WQS at the edge of the ZOM.

Where reasonable potential has been determined for HAR Section 11-54-6(b)(3) pollutants, limitations must be established that are protective of water quality. Because the dilution at the edge of the ZOM is not known, where assimilative capacity exists this permit establishes limitations for HAR Section 11-54-6(b)(3) pollutants as performance-based effluent limitations and receiving water limitations and requires the

Permittee to conduct a dilution analysis at the edge of the ZOM so that end-of-pipe effluent limitations may be established during future permitting efforts. Where assimilative capacity does not exist, it is not appropriate to grant a ZOM and/or dilution, and an end-of-pipe criteria-based effluent limitation must be established that is protective of WQS.

Assimilative capacity for pollutants with reasonable potential is evaluated for HAR Section 11-54-6(b)(3) pollutants by aggregating all ZOM control station data annually and comparing the annual geometric means to the applicable WQS. If an annual geometric mean exceeds 90 percent of the WQS, assimilative capacity is determined to be insufficient, and dilution may not be granted.

The draft permit includes a condition that allows the permit to be reopened to revise effluent limits eligible for dilution if the Permittee submits an updated DOH-approved Dilution Study that shows more dilution is available. The dilution study should be based on the most conservative conditions when calculating the minimum and average initial dilution. The study should examine all available data and collect additional data where representation of seasonal or other critical conditions influencing dilution are deficient or absent.

Similarly, for Section 11-54-6(b)(3) parameters for which a ZOM has not been established (i.e., ammonia nitrogen, total nitrogen, and total phosphorus), reasonable potential to contribute to an exceedance of WQS is most reasonably assessed by comparing monitoring data at the edge of the ZID to the applicable WQS. If an annual geometric mean at the edge of a ZID exceeds the applicable WQS, the Permittee is determined to have reasonable potential for the pollutant. If an exceedance of WQS is not observed at the edge of the ZID, it is assumed that sufficient dilution and assimilative capacity exists to meet WQS at the edge of the ZID. Assessment of assimilative capacity and establishment of limitations would be as discussed above with the only difference is that ZID data versus ZOM data would be utilized.

**(4) Summary of RPA Results.** The maximum effluent concentrations from the DMRs over the current permit term (or renewal application), maximum projected receiving water concentration after dilution calculated using methods from the TSD, the applicable HAR Section 11-54-4(c)(3) and 11-54-6(b)(3) WQS, and result of the RPA for pollutants discharged from Outfall Serial No. 001 are presented in Table F-12, below. Only pollutants

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detected in the discharge are presented in Table F-12. All other pollutants were not detected and therefore, no reasonable potential exists.

**Table F-12. Summary of RPA Results**

Parameter	Units	Maximum Effluent Concentration <sup>1</sup>	Number of Effluent Samples	Dilution	Maximum Projected Concentration	Applicable WQS	RPA Results
Total Residual Chlorine	µg/L	170	17	111:1	4.8	7.5	Yes <sup>5</sup>
Cyanide	µg/L	ND	5	111:1	ND	1	No
Copper	µg/L	7	5	111:1	0.26	3.5	No
Lead	µg/L	0.1	5	111:1	0.004	5.9	No
Silver	µg/L	ND	5	111:1	ND	2.7	No
Selenium	µg/L	0.5	5	111:1	0.019	71	No
Tributyltin	µg/L	ND	5	111:1	ND	0.01	No
PAHs	µg/L	ND	5	111:1	ND	0.01	No
2,3,7,8 – Tetrachlorodibenzo-p-dioxin	µg/L	ND	5	111:1	ND	5.0E-09	No
4,4'-DDD	µg/L	ND	5	111:1	ND	--	No
Dieldrin	µg/L	ND	5	111:1	ND	0.000025	No
PCBs	µg/L	ND	5	111:1	ND	0.000079	No
Mercury	µg/L	ND	5	111:1	ND	0.025	No
TTO	µg/L	ND	5	111:1	ND	--	No
Chromium (VI) <sup>6,7</sup>	µg/L	51.3	2	111:1	3.42	50	No
Nickel <sup>7</sup>	µg/L	30.6	2	111:1	2.04	8.4	No
Zinc <sup>7</sup>	µg/L	23.9	2	111:1	1.59	91	No
DDT <sup>7</sup>	µg/L	0.032	4	111:1	0.0014	0.000008	Yes
Arsenic <sup>7</sup>	µg/L	1.06	2	111:1	0.071	36	No
Total Nitrogen	µg/L	105 <sup>3</sup>	8	--	NA	150.00	No
Ammonia Nitrogen	µg/L	3.45 <sup>3</sup>	8	--	NA	3.50	No
Nitrate + Nitrite Nitrogen	µg/L	5.02 <sup>2</sup>	8	--	NA	5.00	Yes
Total Phosphorus	µg/L	14 <sup>3</sup>	8	--	NA	20.00	No
Oil and Grease	mg/L	10.7 <sup>4</sup>	60	--	NA	<sup>4</sup>	Yes <sup>5</sup>

<sup>1</sup> Based on reported daily maximums from DMRs dated April 2011 through March 2016 (toxics), January 2011 through December 2015 (nutrients), and June 2011 through May 2016 (other pollutants) and NPDES permit renewal application dated March 9, 2016.

<sup>2</sup> Maximum annual geometric mean at the edge of the ZOM (i.e., ZOM Stations 5, 6, 7, and 8).

<sup>3</sup> Maximum annual geometric mean at the edge of the ZID (i.e., ZID Stations 1, 2, 3, and 4)

<sup>4</sup> HAR Section 11-54-4(a)(2) establishes a narrative water quality objective that all waters shall be free of floating debris, oil, grease, scum, or other floating materials.

<sup>5</sup> See rationale provided in Section D.2.d.(3)(a) for chlorine and D.2.g for oil and grease.

<sup>6</sup> Based off of total chromium, as no data for chromium (VI).

<sup>7</sup> Data based on NPDES permit renewal application Form 2C.

<sup>8</sup> Semi-annual data for 5 years.

**(5) Reasonable Potential Determination**

**(a) Constituents with limited data.** In some cases, reasonable potential cannot be determined because effluent data are limited. Aside from the parameters listed in Table F-12 above, there was no DMR data available for the remaining pollutants listed in HAR Section 11-54-4(c)(3). The previous permit did not require to monitor for all of the HAR constituents. The proposed permit requires the Permittee to monitor for these parameters through annual priority pollutant scans of the effluent using analytical methods that provide the lowest available detection limits. When additional data become available, further RPAs will be conducted to determine whether to add numeric effluent limitations to this permit or to continue monitoring.

**b) Pollutants with No Reasonable Potential.** WQBELs are not included in this draft permit for constituents listed in HAR Chapter 11-54-4(c)(3) and 11-54-6(b)(3), that do not demonstrate reasonable potential; however, monitoring for such pollutants is still required in order to collect data for future RPAs. Pollutants with no reasonable potential consist of those identified in Table F-12 or any pollutant not discussed in Parts D.2.c.(5)(a) or D.2.c.(5)(c) of this Fact Sheet.

**(c) Pollutants with Reasonable Potential.** The RPA indicated that DDT, total residual chlorine and oil and grease have reasonable potential to cause or contribute to an excursion above state WQSS. Further, due to the nature of the discharge (secondary treated wastewater) and the potential human health concerns from pathogens, effluent limitations for enterococcus have been established. Thus, WQBELs have been established in this draft permit at Outfall Serial No. 001 for DDT, total residual chlorine, oil and grease, and enterococcus.

The WQBELs were calculated based on WQSSs contained in HAR Chapter 11-54, and procedures contained in both STCP and HAR Chapter 11-54, as discussed in Part D.2.d., below. WQBELs for nutrients are discussed below and are based on the standards contained in HAR Chapter 11-54-6(b)(3).

**d. WQBEL Calculations**

Specific pollutant limits may be calculated for both the protection of aquatic life and human health.

**(1) WQBELs based on Aquatic Life Standards.** The STCP categorizes a discharge from a facility into one of four categories: (1) marine discharges through submerged outfalls; (2) discharges without submerged outfalls; (3) discharges to streams; or (4) high-rate discharges. Once a discharge has been categorized, effluent limitations for pollutants with reasonable potential can be calculated, as described below.

- (a)** For marine discharges through submerged outfalls, the daily maximum effluent limitation shall be the product of the chronic WQS and the minimum dilution factor;
- (b)** For discharges without submerged outfalls, the daily maximum effluent limitation shall be the acute toxicity standard. More stringent limits based on the chronic standards may be developed using BPJ;
- (c)** For discharges to streams, the effluent limitation shall be the most stringent of the acute standard and the product of the chronic standard and dilution; and
- (d)** For high-rate outfalls, the maximum limit for a particular pollutant is equal to the product of the acute standard and the acute dilution factor determined according to Section II.B.4 of the STCP. More stringent limits based on chronic standards may be developed using BPJ.

**(2) WQBELs based on Human Health Standards.** The STCP specifies that the fish consumption standards are based upon the bioaccumulation of toxics in aquatic organisms followed by consumption by humans. Limits based on the fish consumption standards should be applied as 30-day averages for non-carcinogens and annual averages for carcinogens.

The discharge from this facility is considered a marine discharge through a submerged outfall. Therefore, for pollutants with reasonable potential, the draft permit establishes, on a pollutant-by-pollutant basis, daily maximum effluent limitations based on saltwater chronic aquatic life standard after considering dilution and average monthly effluent limitations for non-carcinogens or annual average effluent limitations for carcinogens based on the human health standard after considering dilution. WQBELs established in the draft permit are discussed in detail below.

### (3) Calculation of Pollutant-Specific WQBELs

As discussed in Part D.2.c.(3) of this Fact Sheet, a dilution of 111:1 has been established.

The following equations were used to calculate reasonable potential for the pollutants below.

$$\text{Projected Maximum RWC} = \text{MEC} \times 99\%_{\text{ratio}} \times \text{Dm}$$

Where:

- RWC = Receiving water concentration
- MEC = Maximum effluent concentration reported
- 99%<sub>ratio</sub> = The 99% ratio from Table 3-1 in the TSD or calculated using methods in Section 3.3.2 of the TSD.
- Dm = Percent Dilution (i.e., 111:1, or 0.90%)

If the projected maximum receiving water concentration is greater than the applicable WQS from HAR Chapter 11-54, the reasonable potential exists for the pollutant and effluent limitations are established. Pollutants with reasonable potential are discussed below in detail.

#### (a) Chlorine

- i. **Chlorine Water Quality Standards.** The most stringent applicable WQSs for chlorine is the chronic aquatic life water quality standard of 7.5 µg/L, as specified in HAR Chapter 11-54. There are no fish consumption standards for chlorine in HAR Chapter 11-54.
- ii. **RPA Results.** The Permittee reported seventeen data points for chlorine (n = 17), resulting in a CV = 0.70. Based on a CV of 0.70 and 17 samples, the 99% multiplier calculated using methods described in section 3.3.2 of the TSD was 2.8. As discussed in Part D.2.c.(3), the facility is granted a dilution of 111:1. Therefore, Dm = 0.90%.

The maximum effluent concentration for chlorine was 0.1 mg/L.

$$\begin{aligned} \text{Projected Maximum RWC} &= \text{MEC} \times 99\%_{\text{ratio}} \times \text{Dm} \\ &= (0.1 \text{ mg/L}) \times 2.8 \times 0.0090 \\ &= 2.52 \text{ µg/L} \end{aligned}$$

$$\text{HAR 11-54 WQS} = 7.5 \text{ µg/L}$$



The projected maximum receiving water concentration (2.52 µg/L) does not exceed the most stringent applicable WQS for this pollutant (7.5 µg/L). However, the TSD recommends that factors other than effluent data should be considered in the RPA, “When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” With regard to POTWs, EPA recommends that, “POTWs should also be characterized for the possibility of chlorine and ammonia problems.” (TSD, p. 50). While ultraviolet (UV) light disinfection is utilized, the facility continues to use chlorine to rehabilitate the sand filter or for foam control. Based on the existing chlorine use (to rehabilitate the sand filter or for foam control), the discharge has reasonable potential to cause or contribute to an exceedance of the water quality criteria for chlorine. Therefore, the draft permit establishes effluent limitations for chlorine.

- iii. Chlorine WQBELs.** WQBELs for chlorine are calculated using STCP procedures and are based on the chronic aquatic life WQS and human health standard. The draft permit establishes a daily maximum effluent limitation for chlorine of 0.83 mg/L based on the chronic aquatic life WQS and a dilution of 111:1 (minimum initial dilution).

There are no fish consumption standards for chlorine; therefore, a monthly or annual average effluent limitation for chlorine is not included in the draft permit.

- iv. Feasibility.** The maximum effluent concentration reported for chlorine during the term of the previous permit was 0.1 mg/L. Since the maximum effluent concentration is less than the proposed maximum daily effluent limitation of 0.83 mg/L, the DOH has determined that the facility will be able to comply with proposed maximum daily chlorine effluent limitations.
- v. Anti-backsliding.** Anti-backsliding regulations are satisfied because the effluent limitations for chlorine are at least as stringent as the previous permit.

(b) DDT

- i. **DDT Water Quality Standards.** The most stringent applicable WQSs for DDT is the human health standard of 0.000008 µg/L, as specified in HAR Chapter 11-54.
- ii. **RPA Results.** The Permittee reported four data points for DDT (n = 4), resulting in a CV = 0.6. Based on a CV of 0.6 and four (4) samples, the 99% multiplier calculated using methods described in section 3.3.2 of the TSD was 4.7. As discussed in Part D.2.c.(3), the facility is granted a dilution of 111:1. Therefore, Dm = 0.90%.

The maximum effluent concentration for DDT was 0.032 µg/L.

$$\begin{aligned}\text{Projected Maximum RWC} &= \text{MEC} \times 99\%_{\text{ratio}} \times D_m \\ &= (0.032 \text{ µg/L}) \times 4.7 \times 0.0090 \\ &= 0.00135 \text{ µg/L}\end{aligned}$$

$$\text{HAR 11-54 WQS} = 0.000008 \text{ µg/L}$$

The projected maximum receiving water concentration (0.00135 µg/L) exceeds the most stringent applicable WQS for this pollutant (0.000008 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for DDT.

- iii. **DDT WQBELs.** WQBELs for DDT are calculated using STCP procedures and are based on the chronic aquatic life WQS and human health standard. The draft permit establishes a daily maximum effluent limitation for DDT of 0.111 µg/L based on the chronic aquatic life WQS and a dilution of 111:1 (minimum initial dilution), and an annual average effluent limitation of 0.000888 µg/L based on the human health standard for carcinogens and a dilution of 111:1 (minimum initial dilution conservatively used as no average dilution provided).
- iv. **Feasibility.** The maximum effluent concentration reported for DDT during the term of the previous permit was 0.032 µg/L. Since the maximum effluent concentration is less than the proposed maximum daily effluent limitation of 0.111 µg/L, the DOH has determined that the facility will be able to comply with proposed maximum daily DDT effluent limitations.

There was no maximum annual average concentration reported for DDT during the term of the previous permit (only the maximum daily value reported in the renewal application) for comparison with the proposed maximum annual average effluent limitation of 0.000888 µg/L.

- v. Anti-backsliding.** Anti-backsliding regulations are satisfied because the effluent limitations were not established in the previous permit for DDT, thus these limitations are at least as stringent as the previous permit.

**e. Nitrate + Nitrite Nitrogen**

HAR Chapter 11-54-6 establishes the following WQS for nitrate + nitrite nitrogen:

Parameter	Geometric Mean	Value not to exceed more than 10% of the time	Value not to exceed more than 2% of the time
Nitrate +Nitrite Nitrogen (µg/L)	5.00	14.00	25.00

As demonstrated in Table F-12 of this Fact Sheet, reasonable potential to exceed applicable WQS for nitrate + nitrite has been determined.

Nitrate + nitrite nitrogen is a constituent of the total nitrogen series. Since various forms of nitrogen change in the receiving water, total nitrogen is the most appropriate characterization of water quality. It is therefore DOH's current implementation procedure to no longer establish effluent limitations for nitrate + nitrite nitrogen. Since effluent monitoring for total nitrogen is still established in the modified permit, it is not necessary to monitor or retain effluent limitations for nitrate + nitrite nitrogen in the effluent, as DOH's new implementation policy uses total nitrogen as a surrogate for nitrate + nitrite nitrogen.

Therefore, the modification removes the effluent limitations for nitrate + nitrite nitrogen. The removal of this limit is in accordance with DOH implementation procedures.

**f. pH**

The Permittee was previously granted a ZID for pH. The pH values observed at the edge of the ZID ranged between 8.08 to 8.23 s.u., for all stations, and are within the WQSSs for open coastal waters in HAR Section 11-54-6(b)(3). Thus, the technology-based effluent limitations of between 6.0 to 9.0 at all times appears to be protective of water quality outside the ZID and has been retained.

**g. Oil and Grease**

HAR Section 11-54-4(a)(2), establishes a narrative water quality objective that all waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including oil and grease. Oil and grease is a pollutant commonly found in the effluent from wastewater treatment plants serving municipalities. The facility accepts and treats oil and grease wastes from numerous industrial and non-industrial sources and there have been concerns in the past related to oily waste discharges to the Facility. Limitations for oil and grease will help to ensure that these oily waste are adequately controlled.

The previous permit included a maximum daily effluent limitation of 10 mg/L for oil and grease. The maximum effluent concentration for oil and grease [over the last five (5) years] was 10.7 mg/L and the RPA indicated that oil and grease has reasonable potential to cause or contribute to an excursion above state WQSSs. As such, this permit retains the maximum daily effluent limitation of 10 mg/L.

Anti-backsliding regulations are satisfied because the proposed oil and grease effluent limitations are at least as stringent as the previous permit.

**h. Enterococcus**

The discharge consists of treated sewage which may contain pathogens at elevated concentrations if not properly disinfected, sufficient to impact human health or the beneficial uses of the receiving water. To ensure the protection of human health, this permit establishes effluent limitations for enterococcus.

HAR Section 11-54-8(b), establishes recreational criteria for all State waters designed to protect the public from exposure to harmful levels of pathogens while participating in water-contact activities. The specified recreational criteria for all State waters are: a geometric mean of 35 CFU/100 mL over any 30-day interval and a Statistical Threshold Value (STV) of 130 CFU/100 mL.

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The STV of 130 is being applied as a single sample maximum, where not more than 10% of the samples taken within the month shall exceed this value.

Consistent with 3.3 of EPA's TSD, the regulatory authority should consider additional information discussed under Section 3.2 (i.e., type of industry, type of POTW, type of receiving water and designated uses, etc.) when evaluating reasonable potential. Reasonable potential can be determined without effluent or receiving water exceedances of applicable water quality criteria. The facility is a domestic WWTP and due to the nature of the discharge, pathogens are characteristic of treated municipal wastewater. The beneficial uses of the receiving water include recreation where human contact may occur.

EPA's document "FAQ: NPDES Water-Quality Based Permit Limits for Recreational Water Quality Criteria," dated April 2, 2015 states, "Many states assess reasonable potential with respect to pathogen or pathogen indicator criteria based solely on the nature of the effluent discharge. Because pathogens are present at significant levels in all untreated municipal wastewater, some states have determined that all municipal wastewater treatment plants that discharge to recreational waters have a reasonable potential to cause or contribute to an excursion above the applicable recreational water quality standard. EPA supports this approach and believes that it is consistent with existing statutory and regulatory requirements."

Accordingly, considering the nature of the discharge and human health concerns from pathogens, the DOH always expects wastewater treatment plants to have reasonable potential for enterococcus. This methodology to determine reasonable potential is consistent with the methodology used for other wastewater treatment plant NPDES permits recently issued. To ensure the protection of human health, this draft permit establishes effluent limitations for enterococcus.

Although the previous permit did not require receiving water enterococcus monitoring, receiving water data from the closest neighboring Sand Island Wastewater Treatment Plant (Fact Sheet dated January 28, 2013) which also discharges into Mamala Bay, shows the highest annual geometric mean for the three closest stations (stations C1A, D1, and E1) of 3.6 CFU/100 mL is less than 90 percent of the applicable WQS (31.5 CFU/100 mL). Based on this objective, assimilative capacity appears to be present in the receiving water. Thus, dilution should be granted for enterococcus.

The draft permit establishes the following end-of-pipe effluent limitations and monitoring requirements for enterococcus at Outfall Serial No. 001 based on

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40 CFR 131.41(c)(2) and dilutions discussed below. Although the human contact with the receiving water may be infrequent, human contact within the zone of mixing may occur, thus for the protection of human health due to the potential for acute illness from pathogens, the minimum initial dilution of 111:1 was used to calculate applicable WQBELs for enterococcus.

- (1) Due to the potential for human contact within the receiving water, a geometric mean effluent limitation of 3,885 CFU per 100 mL has been calculated, based on the geometric mean of 35 CFU per 100 mL and a minimum initial dilution of 111:1. The previous permit included a geometric mean of 35 CFU per 100 milliliters in accordance with national water quality standards (Table 4, Page 15 of *Ambient Water Quality Criteria for Bacteria* – 1986, EPA 440/5-84-002, January 1986).

Consistent with HAR Chapter 11-54-1.1(b), where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation, in and on the water, that quality shall be maintained and protected unless a lowering of water quality is necessary to accommodate important economic or social development. Because the Permittee has the facilities necessary to achieve compliance with the previous effluent limitation, and has not demonstrated degradation of water quality is necessary to accommodate important economic or social development, the maximum monthly geometric mean limitation of 35 CFU per 100 milliliters has been carried over. Based on the effluent data from June 2011 through May 2016, the maximum reported effluent monthly geometric mean enterococcus concentration was 7 CFU/100 mL. Therefore, the Discharger is expected to be able to comply with the effluent limitation.

- (2) Considering the applicable single sample maximum of 130 CFU per 100 mL and a minimum dilution of 111:1, a single sample maximum effluent limitation of 14,430 CFU per 100 mL has been established in this permit. Based on the effluent data from January 2011 through December 2015, the maximum reported effluent monthly geometric mean enterococcus concentration was 7 CFU/100 mL. Therefore, the Discharger is expected to be able to comply with the effluent limitation.

Anti-backsliding regulations are satisfied because these final effluent limitations for enterococcus are at least as stringent as the previous permit.

**i. Storm Water – Outfall Serial No. 002**

The previous permit identified Outfall Serial No. 002 as a storm water outfall. During the term of the previous permit, the facility did not discharge to this outfall.

Many of the storm water discharges in the JBPHH area are covered under a separate storm sewer system permit (NPDES permit HIS000257). As such, this permit does not contain requirements related to the control of storm water discharges to the storm water collection system. However, as defined in 40 CFR 122.26(b)(14)(ix), storm water discharges associated with industrial activity from treatment works used to treat domestic sewage are required to be covered by an NPDES permit (Part A.4.).

According to the permit application for the Facility for storm water discharges associated with industrial activities, all storm water from the facility is either captured and directed to the Facility, or sheet flows through the Facility (due to the existing grade of the site). The application also states that the majority of the WWTP is relatively flat and backfilled with gravel material that allows for good percolation; that within the plant, sheet flows travel to low points throughout the facility and eventually percolate into the ground and/or evaporate into the atmosphere; that portions of the WWTP boundaries are adequately bermed to prevent unauthorized discharge of storm water to surface waters of Pearl Harbor. Thus, most of the storm water that is not captured and directed to the Facility eventually percolates through the ground and/or evaporates into the atmosphere.

Since the application describes the potential for point source discharges of storm water from the Facility into the Pearl Harbor Entrance Channel, the requirements contained in the Hawaii NPDES General Permit Authorizing Discharges of Storm Water Associated with Industrial Activities (HAR Chapter 11-55, Appendix B) and applicable federal regulations at 40 CFR 122 and 125, effluent limitations and minimum monitoring requirements are established in the permit, and are applicable to storm water discharges occurring from the Facility.

The application indicated that sewage grit and raw sewage have reasonable potential to be present in the storm water discharge from the Facility if not properly managed. Storm water discharge limitations and monitoring requirements for Enterococcus Bacteria was included in Part A.4. of the permit. The previous permit included a discharge limitation of 89 CFU/100 ml based on HAR Section 11-54-8(a)(1) at the time of permit issuance. The current HAR Section 11-54-8(b) specifies a statistical threshold value (STV)

of 130 CFU/100 ml (applied as a single sample maximum by the CWB). However, consistent with HAR Chapter 11-54-1.1(b), where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation, in and on the water, that quality shall be maintained and protected unless a lowering of water quality is necessary to accommodate important economic or social development. Because the Permittee has the facilities necessary to achieve compliance with the previous effluent limitation and has not demonstrated degradation of water quality is necessary to accommodate important economic or social development, the single sample discharge limitation of 89 CFU per 100 milliliters has been carried over. There have been no discharges over the past permit term, therefore, the Discharger is expected to be able to comply with the effluent limitation.

The draft permit retains the effluent limitations from the previous permit for storm water discharges at Outfall Serial No. 002. Consistent with HAR Chapter 11-55, Appendix B, the performance of annual monitoring of storm water for toxics has been incorporated into the draft permit.

The permit also requires the Permittee to update and implement its Storm Water Pollution Control Plan (SWPCP) to control storm water discharges associated with the Facility. The permit also requires that the Facility review and update the SWPCP as often as needed, or as required by the Director.

Storm water requirements contained in the permit include:

- (1) Numeric effluent limitations and monitoring requirements for storm water at Outfall Serial No. 002;
- (2) The implementation and renewal of a SWPCP.

**j. Whole Effluent Toxicity (WET)**

WET limitations protect receiving water quality from the aggregated toxic effect of a mixture of pollutants in an effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent or receiving water. The WET approach allows for protection of the narrative criterion specified in HAR Chapter 11-54-4(c)(2), while implementing Hawaii's numeric WQS for toxicity. There are two (2) types of WET tests – acute and chronic. An acute toxicity test is conducted over a short period of time and measures mortality. A chronic toxicity test is generally conducted over a longer period of time and may measure mortality, reproduction, or growth.



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The previous permit established a chronic WET effluent limitation at Outfall Serial No. 001 for *Ceriodaphnia dubia* and additional monitoring for *Tripneustes gratilla*.

Whole effluent toxicity data for the time period between January 2011 and December 2015 using the test species *C. dubia* did not result in an exceedance of the chronic toxicity effluent limitation; however, monitoring results for *T. gratilla* indicates that the Permittee has reasonable potential to exceed the effluent limitation for chronic toxicity of 111 TU<sub>c</sub> established in the previous permit for Outfall Serial No. 001, with effluent results as high as >444 TU<sub>c</sub>.

A chronic WET effluent limitation has been established at Outfall Serial No. 001. For improved WET analysis, DOH has begun implementing EPA's Test of Significant Toxicity Method (TST) for WET effluent limitations within the State. As such, the chronic WET effluent limitation at Outfall Serial No. 001 has been revised to be consistent with the TST method using *T. gratilla*. *T. gratilla* is a native species to Hawaii, and as observed in historic effluent data, *T. gratilla* is more sensitive to potential toxic pollutants with the Permittee's effluent than *C. dubia*. The use of *T. gratilla* is representative of toxic impacts on local species.

Test procedures for measuring toxicity to marine organisms of the Pacific Ocean, including *T. gratilla*, are not provided at 40 CFR Part 136. Consistent with the Preamble to EPA's 2002 Final WET Rule, permit writers may include (under 40 CFR 122.41(j)(4) and 122.44(i)(iv)) requirements for the use of test procedures that are not approved at 40 CFR Part 136 on a permit-by-permit basis. The use of alternative methods for West coast facilities in Hawaii is further supported under 40 CFR 122.21(j)(5)(viii), which states, "West coast facilities in..., Hawaii,... are exempted from 40 CFR [P]art 136 chronic methods and must use alternative guidance as directed by the permitting authority."

EPA has issued applicable guidance for conducting chronic toxicity tests using *T. gratilla* in Hawaiian Collector Urchin, *Tripneustes gratilla* (Hawa'e) Fertilization Test Method (Adapted by Amy Wagner, EPA Region 9 Laboratory, Richmond, CA from a method developed by George Morrison, EPA, ORD Narragansett, RI and Diane Nacci, Science Applications International Corporation, ORD Narragansett, RI) (EPA/600/R-12/022).

As previously discussed, reasonable potential for WET has been determined for Outfall Serial No. 001 and an effluent limitation must be established in accordance with 40 CFR 122.44(d)(1). Further, a WET effluent limitation and

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monitoring are necessary to ensure compliance with applicable WQS in HAR Chapter 11-54-4(c)(2).

The proposed WET limitation and monitoring requirements are incorporated into the draft permit in accordance with the EPA national policy on water quality-based permit limitations for toxic pollutants issued on March 9, 1984 (49 FR 9016), HAR Section 11-54-4(c)(2)(B), and EPA's National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010).

Consistent with HAR Section 11-54-4(c)(2)(B), this Permit establishes a chronic toxicity effluent limitation based on the TST hypothesis testing approach. The TST approach was designed to statistically compare a test species response to the in-stream waste concentration (IWC) and a control.

For continuous discharges through submerged outfalls, HAR Section 11-54-4(c)(4)(A) requires the no observed effect concentration (NOEC), expressed as a percent of effluent concentration, to not be less than 100 divided by the minimum dilution. Thus, the minimum dilution of 111:1 is most appropriate for establishing a critical dilution factor. The following equation is used to calculate the IWC where dilution is granted (Outfall Serial No. 001):

$$\begin{aligned}\text{IWC} &= 100/\text{critical dilution factor} \\ &= 100/111 \\ &= 0.901\%\end{aligned}$$

For any one chronic toxicity test, the chronic WET permit limit that must be met is rejection of the null hypothesis ( $H_0$ ):

$$\text{IWC (percent effluent) mean response} \leq 0.75 \times \text{Control mean response.}$$

A test result that rejects this null hypothesis is reported as "Pass." A test result that does not reject this null hypothesis is reported as "Fail."

The acute and chronic biological effect levels (effect levels of 20% and 25%, respectively, or b values of 0.80 and 0.75, respectively) incorporated into the TST define EPA's unacceptable risks to aquatic organisms and substantially decrease the uncertainties associated with the results obtained from EPA's traditionally used statistical endpoints for WET. Furthermore, the TST reduces the need for multiple test concentrations which, in turn, reduces laboratory

costs for dischargers while improving data interpretation. A significant improvement offered by the TST approach over traditional hypothesis testing is the inclusion of an acceptable false negative rate. While calculating a range of percent minimum significant differences (PMSDs) provides an indirect measure of power for the traditional hypothesis testing approach, setting appropriate levels for  $\beta$  and  $\alpha$  using the TST approach establishes explicit test power and provides motivation to decrease within test variability which significantly reduces the risk of under reporting toxic events (USEPA 2010<sup>1</sup>).

Taken together, these refinements simplify toxicity analyses, provide dischargers with the positive incentive to generate high quality data, and afford effective protection to aquatic life.

A WET effluent limitation based on the TST hypothesis testing approach is protective of the WQS for toxicity contained in HAR Section 11-54-4(c)(4)(B) and is not considered to be less stringent. Use of the TST approach is consistent with the requirements of State and federal anti-backsliding regulations.

#### **k. Summary of Final Effluent Limitations**

In addition to the effluent limitations specified above, HAR Section 11-55-20 requires that daily quantitative limitations by weight be established where possible. Thus, in addition to concentration based-effluent limitations, mass-based effluent limitations (in pounds per day) have been established where applicable based on the following formula:

$$\text{lbs/day} = 8.34 * \text{concentration (mg/L)} * \text{flow (MGD)}$$

40 CFR 122.45(b)(1) requires that mass-based effluent limitations for POTWs be based on design flow. The previous permit established mass based effluent limitations on a flow of 13 MGD. This draft continues to include mass-based effluent limitations using a flow of 13 MGD.

The limitations established in this permit meet applicable anti-backsliding and antidegradation requirements, as discussed in Part D.2.l. and D.2.m. of this Fact Sheet.

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<sup>1</sup> U.S. Environmental Protection Agency. 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document. EPA 833-R-10-003. Washington, DC: Office of Wastewater Management.

**(a) Outfall Serial No. 001**

The following table lists final effluent limitations at Outfall Serial No. 001 contained in the draft permit and compares them to effluent limitations contained in the previous permit.

**Table F-13. Summary of Final Effluent Limitations for Outfall Serial No. 001 – BOD and TSS**

Parameter	Units	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	30	45	--	30	45	--
	lbs/day <sup>1</sup>	3,300	4,900	--	3,253	4,879	--
	% Removal	Report			The average monthly percent removal shall not be less than 85 percent.		
Total Suspended Solids (TSS)	mg/L	30	45	--	30	45	--
	lbs/day <sup>1</sup>	3,300	4,900	--	3,253	4,879	--
	% Removal	Report			The average monthly percent removal shall not be less than 85 percent.		

<sup>1</sup> Based on a dry weather design flow of 13 MGD. It appears that previous permit rounded lbs/day values to the nearest hundredth.

**Table F-14. Summary of Final Effluent Limitations for Outfall Serial No. 001– All Other Pollutants**

Parameter	Units	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations		
		Average Annual	Average Monthly	Maximum Daily	Average Annual	Average Monthly	Maximum Daily
Enterococci	CFU/100 mL	--	35 <sup>1</sup>	--	--	35 <sup>1</sup>	14,430 <sup>2</sup>
pH	s.u.	Not less than 6.0 and not greater than 9.0			Not less than 6.0 and not greater than 9.0		
Settleable Solids	ml/l	--	1	2	--	1	2
Oil and Grease	mg/L	--	--	10	--	--	10
	lbs/day <sup>3</sup>	--	--	--	--	--	1,084
Chlorine, Total Residual	mg/l	--	--	0.83	--	--	0.83
	lbs/day <sup>3</sup>	--	--	--	--	--	90.26
DDT	µg/l	--	--	--	0.000888	--	0.111
	lbs/day	--	--	--	0.00096	--	0.012
Total Nitrogen <sup>9</sup>	mg/l	16.65 <sup>7</sup>	--	--	--	--	8

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Parameter	Units	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations		
		Average Annual	Average Monthly	Maximum Daily	Average Annual	Average Monthly	Maximum Daily
Ammonia Nitrogen <sup>9</sup>	mg/l	0.39 <sup>7</sup>	--	--	--	--	8
Nitrate + Nitrite Nitrogen	µg/l	--	--	8,810 <sup>6</sup>	--	--	--
	lbs/day <sup>3</sup>	--	--	955 <sup>6</sup>	--	--	--
Total Phosphorus <sup>9</sup>	mg/l	2.22 <sup>7</sup>	--	--	--	--	8
Chronic Toxicity – <i>Ceriodaphnia Dubia</i>	TUc	--	--	111	--	--	--
Chronic Toxicity – <i>Tripneustes Gratilla</i>	--	--	--	4	--	--	Pass <sup>5</sup>

<sup>1</sup> Effluent limitation expressed as a monthly geometric mean.

<sup>2</sup> Effluent limitation expressed as a single sample maximum (STV of 130 CFU/100 mL with dilution of 111:1). Not more than 10% of the samples taken within the month shall exceed this value.

<sup>3</sup> Based on a design flow of 13 MGD.

<sup>4</sup> The chronic toxicity discharge limitation of 111 TUc listed in Part A.1 of the previous permit did not apply to monitoring results for toxicity tests using *Tripneustes gratilla*.

<sup>5</sup> "Pass," as described in section D.2.j of this Fact Sheet.

<sup>6</sup> Applied as a single sample maximum.

<sup>7</sup> Applied as an annual geometric mean.

<sup>8</sup> Monitor and report the analytical test results.

<sup>9</sup> See Section D.2.c.(4) and discussion on total nitrogen, ammonia nitrogen, and total phosphorus in Section D.2.l.

**Table F-15. Summary of Final Effluent Limitations for Existing Sources:**

<u>Outfall Serial Nos.</u>	<u>Industrial Wastewater Sources</u>
002I	Building No. 67
005I	Building No. 214
010I	Building No. 1670
013I	PHNSY Drydock #1, #2, #3, and #4

Parameter	Units	Effluent Limitations Contained in the Previous Permit		Proposed Effluent Limitations	
		Quarterly Average	Maximum Daily	Monthly Average	Maximum Daily
Total Cadmium	mg/l	0.26	0.69	0.26	0.69
Total Chromium	mg/l	1.71	2.77	1.71	2.77
Total Copper	mg/l	2.07	3.38	2.07	3.38
Total Lead	mg/l	0.43	0.69	0.43	0.69
Total Nickel	mg/l	2.38	3.98	2.38	3.98

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Parameter	Units	Effluent Limitations Contained in the Previous Permit		Proposed Effluent Limitations	
		Quarterly Average	Maximum Daily	Monthly Average	Maximum Daily
Total Silver	mg/l	0.24	0.43	0.24	0.43
Total Zinc	mg/l	1.48	2.61	1.48	2.61
Total Cyanide	mg/l	0.65	1.20	0.65	1.20
Total Toxic Organics	mg/l	--	2.13	--	2.13

Note: Outfall Serial No. 04I (Building No. 155) was removed as discussed above.

According to the Navy, depending on the need for treatment, discharge from the internal outfalls may or may not be directed to the IWTC for further treatment. The proposed effluent limitations for existing sources apply to wastewater discharges that go directly to the WWTP (i.e., they are not directed to the IWTC for treatment before going to the WWTP). Discharges from the internal outfalls that are treated at the IWTC prior to entering the WWTP are subject to the effluent limitations in Table F-17.

**Table F-16. Summary of Final Effluent Limitations for New Sources:**

<u>Outfall Serial No.</u>	<u>Industrial Wastewater Sources</u>
008I	Building No. 1456
012I	Building No. 1770

Parameter	Units	Effluent Limitations Contained in the Previous Permit		Proposed Effluent Limitations	
		Quarterly Average	Maximum Daily	Monthly Average	Maximum Daily
Total Cadmium	mg/l	0.07	0.11	0.07	0.11
Total Chromium	mg/l	1.71	2.77	1.71	2.77
Total Copper	mg/l	2.07	3.38	2.07	3.38
Total Lead	mg/l	0.43	0.69	0.43	0.69
Total Nickel	mg/l	2.38	3.98	2.38	3.98
Total Silver	mg/l	0.24	0.43	0.24	0.43
Total Zinc	mg/l	1.48	2.61	1.48	2.61
Total Cyanide	mg/l	0.65	1.20	0.65	1.20
Total Toxic Organics	mg/l	--	2.13	--	2.13

Note: Outfall Serial Nos. 020I (Building No. 2016), 021I (Building 2030A/B), 022I (Building No. 2131), 023I (Building 3400), 024I (Building No. 3407), 025I (Building No. 2130), and 026I (Clear Water Rinse Facility) were removed as discussed above.

According to the Navy, depending on the need for treatment, discharge from the internal outfalls may or may not be directed to the IWTC for further treatment. These proposed effluent limitations for new sources

apply to wastewater discharges that go directly to the WWTP (i.e., they are not directed to the IWTC for treatment before going to the WWTP). Discharges from the internal outfalls that are treated at the IWTC prior to entering the WWTP are subject to the effluent limitations in Table F-17.

**Table F-17. Summary of Final Effluent Limitations for Combined Existing and New Sources:**

<u><b>Outfall Serial No.</b></u>	<u><b>Industrial Wastewater Sources</b></u>
014I	NAVFAC HI industrial Wastewater Treatment Complex (IWTC)

Parameter	Units	Effluent Limitations Contained in the Previous Permit		Proposed Effluent Limitations	
		Quarterly Average	Maximum Daily	Monthly Average	Maximum Daily
Total Cadmium	mg/l	0.21	0.54	0.21	0.54
Total Chromium	mg/l	1.71	2.77	1.71	2.77
Total Copper	mg/l	2.07	3.38	2.07	3.38
Total Lead	mg/l	0.43	0.69	0.43	0.69
Total Nickel	mg/l	2.38	3.98	2.38	3.98
Total Silver	mg/l	0.24	0.43	0.24	0.43
Total Zinc	mg/l	1.48	2.61	1.48	2.61
Total Cyanide	mg/l	0.65	1.20	0.65	1.20
Total Toxic Organics	mg/l	--	2.13	--	2.13

As concentrations of pollutants may vary by batch and/or time period, conditions have been added to the permit to require that the samples and measurements taken shall be representative of the wastewater discharged from the internal outfall during the month. If the wastewater discharge from a certain batch or time period is not representative of the previous batch(es)/time period(s) sampled during the month, additional sampling is required to ensure discharges with the highest concentrations of pollutants are monitored. Proposed discharge limitations are based on monthly averages (versus quarterly averages) as specified in 40 CFR 433.

**(b) Outfall Serial No. 002**

The following table lists final effluent limitations at Outfall Serial No. 002 contained in the draft permit and compares them to effluent limitations contained in the previous permit.

**Table F-18. Summary of Final Storm Water Limitations**

Parameter	Units	Storm Water Limitations Contained in the Previous Permit <sup>1</sup>	Proposed Storm Water Limitations <sup>1</sup>
Flow	MGD	2	2
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	2	2
Chemical Oxygen Demand	mg/L	2	2
Total Suspended Solids (TSS)	mg/L	2	2
Total Phosphorus	mg/L	2	2
Total Nitrogen	mg/L	2	2
Nitrate + Nitrite Nitrogen	mg/L	2	--
Oil and Grease	mg/L	15	15
pH	s.u.	6.8 – 8.8	6.8 – 8.8
Enterococcus	CFU/100 mL	89	89

<sup>1</sup> Pollutant concentration levels shall not exceed the storm water discharge limits or be outside the ranges indicated in the table.

<sup>2</sup> No limitation, only monitoring required.

## **I. Satisfaction of Anti-Backsliding Requirements**

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA Sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

Federal anti-backsliding regulations at 40 CFR 122.44(l)(i) allows for effluent limitations in a reissued permit to be less stringent if information is available which was not available at the time of the permit issuance and which have justified the application of a less stringent effluent limitation.

The previous permit contained effluent limitations for total nitrogen, ammonia nitrogen, and total phosphorus at Outfall Serial No. 001. Data reported during the term of the previous permit indicated these pollutants do not have reasonable potential to cause or contribute to exceedances of WQS in HAR Chapter 11-54 for this outfall. Therefore, based on this new information, the effluent limitations for total nitrogen, ammonia nitrogen, and total phosphorus have not been retained for Outfall Serial No. 001 in the draft permit. However, monitoring for these pollutants are retained to collect data for future RPAs.



The previous permit also contained effluent limitations for Non-navy internal outfalls based on the metal finishing regulations. These internal outfalls were removed from the proposed permit as discussed in Section D.1.b.(2)(iv) of the fact sheet. Removal of these outfalls and associated effluent limitations based on information that was not available at the time of the previous permit issuance, are consistent with anti-backsliding requirements in 40 CFR 122.44(l)(i). These sources will continue to be regulated under the source control provisions (Industrial Wastewater Sewer Discharge Permit System Program) as they were prior to joint basing.

As discussed in Part D.2.h of this Fact Sheet, since various forms of nitrogen change in the receiving water, total nitrogen is the most appropriate characterization of water quality. DOH's implementation policy uses total nitrogen as a surrogate for nitrate + nitrite nitrogen, which removes the necessity to monitor nitrate + nitrite nitrogen. It is therefore DOH's current implementation procedure to no longer establish effluent limitations for nitrate + nitrite nitrogen. The removal of the nitrate + nitrite nitrogen effluent limitation in the modified permit is in accordance with DOH implementation procedures.

The effluent limitations and other requirements established by the draft permit are at least as stringent as the effluent limitations in the previous permit and are consistent with state and federal anti-backsliding regulations.

#### **m. Satisfaction of Antidegradation Policy Requirements**

The DOH established the State antidegradation policy in HAR Section 11-54-1.1, which incorporates the federal antidegradation policy at 40 CFR 131.12. HAR Section 11-54-1.1 requires that the existing quality of waters be maintained unless degradation is justified based on specific findings demonstrating that allowing lower water quality is necessary to accommodate economic or social development in the area in which the waters are located. The draft permit does not allow for an increase in effluent flow or mass of pollutants to the receiving water. As discussed in Part 2.D.i. above, WET testing using ceriodaphnia dubia was removed because there were no exceedances from June 2011 to May 2016 for ceriodaphnia dubia and several for T. gratilla. Since T. gratilla appears to be the more sensitive species, WET testing only for T. gratilla was retained.

Therefore, the permitted discharge is consistent with antidegradation provisions of 40 CFR 131.12 and HAR Section 11-54-1.1. The impact on existing water quality will be insignificant and the level of water quality necessary to protect the existing uses will be maintained and protected.

## E. Rationale for Receiving Water and Zone of Mixing Requirements

### 1. Existing Receiving Water Limitations and Monitoring Data – Offshore Stations

The following are a summary of the geometric mean values calculated from each offshore monitoring location, reported in the semi-annual DMRs from January 2011 through December 2015.

**Table F-19. Offshore Monitoring Stations**

Station	Highest Annual Geometric Mean <sup>1</sup>					
	Nitrate + Nitrite Nitrogen <sup>2</sup>	Ammonia Nitrogen <sup>2</sup>	Total Nitrogen <sup>2</sup>	Total Phosphorus <sup>2</sup>	Turbidity <sup>2</sup>	Chlorophyll <u>a</u> <sup>2</sup>
	µg/L	µg/L	µg/L	µg/L	NTU	µg/L
W1 (ZID)	--	1.45	105	14	0.17	0.40
W2 (ZID)	--	2.29	103	14	0.16	0.42
W3 (ZID)	--	3.45	104	14	0.15	0.42
W4 (ZID)	--	2.59	101	14	0.14	0.40
W5 (ZOM)	2.78	--	--	--	--	--
W6 (ZOM)	2.20	--	--	--	--	--
W7 (ZOM)	<b>5.02</b>	--	--	--	--	--
W8 (ZOM)	1.48	--	--	--	--	--
W9 (Control Station)	2.37	2.67	113	13	0.38	0.82
W10 (Control Station)	1.15	3.04	102	14	0.13	0.37
Applicable Water Quality Standard	5.00	3.50	150.00	20.00	0.50	0.30

<sup>1</sup> Source: Semi-annual DMR's submitted by the Permittee from January 2011 through December 2015.

<sup>2</sup> Reported geometric mean is the maximum annual geometric mean from the top, middle, and bottom sampling points at each station.

### 2. Proposed Receiving Water Limitations

#### a. Basic Water Quality Criteria Applicable to the Facility

- (1) The discharge shall not cause a violation of any applicable WQS for receiving waters adopted by the DOH, as required by the Water Quality Act of 1987 (P.L. 100-4) and regulations adopted thereunder. The DOH adopted WQSs specific for open coastal waters in HAR Chapter 11-54. The draft permit incorporates receiving water limitations and requirements to ensure the facility does not exceed applicable WQSs.

- (2)** The Mamala Bay is designated as “Class A Wet Open Coastal Waters.” As such, the discharge from the facility shall not interfere with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife and allows recreational activities in and on the water. The draft permit incorporates receiving water limitations for the protection of the beneficial uses of Mamala Bay.

The Permittee is required to comply with the HAR Chapter 11-54, Basic Water Quality Criteria of which has been incorporated as part of the draft permit under Section 1 of the DOH Standard NPDES Permit Conditions, Version 15.

- (3)** The following criteria are included in HAR Section 11-54-8(b) and (c) for recreational areas in marine recreational waters:
- (a)** These criteria are designed to protect the public from exposure to harmful levels of pathogens while participating in water-contact activities. The specific criteria for enterococcus shall be expressed in colony forming units (CFU) per one hundred milliliters, as specified by the analytical method used.
  - (b)** Enterococcus content shall not exceed a geometric mean of 35 colony forming units per one hundred milliliters over any 30-day interval.
  - (c)** A Statistical Threshold Value (STV) of 130 per one hundred milliliters shall be used for enterococcus. The STV shall not be exceeded by more than ten percent of samples taken within the same 30-day interval in which the geometric mean is calculated. This STV is being applied as a single sample maximum effluent limitation with a dilution of 111:1, where not more than 10% of the samples taken within the month shall exceed this value.

In accordance with national water quality standards (Table 4, Page 15 of Ambient Water Quality Criteria for Bacteria – 1986, EPA 440/5-84-002, January 1986) at the time of reissuance, the previous permit included a geometric mean of 35 CFU per 100 mL. However, as explained by the DOH in *Rationale for Proposed Revisions to Hawaii Administrative Rules Title 11 Department of Health Chapter 54 Water Quality Standards*, the revision was to be consistent with EPA’s 2012 Recreational Water Quality Criteria (RWQC) recommendations (DPA-820-F-12-061,

December 2012) for protecting human health in all coastal and non-coastal waters (<http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/>). EPA's recommendations are intended to protect the public from exposure to water that contains organisms that indicate the presence of fecal contamination. Based on the RWQC, DOH believes that the recommended 35 CFU/100 mL geometric mean and 130 CFU/100 mL STV for enterococcus (entero) will protect the public from exposure to harmful levels of pathogens as a result of human sewage contamination while participating in water activities such as swimming, wading, surfing, and other water contact activities. The new standards were effective on November 15, 2014. The draft permit establishes the new enterococcus standards from HAR Section 11-54-8(b) for recreational waters for all State waters. Since the new WQSSs were adopted by the DOH and EPA for all State waters, DOH has determined that the impact the new WQSSs established in the draft permit will be insignificant and the level of water quality necessary to protect the existing uses will be maintained and protected.

- (d) State waters in which enterococcus content does not exceed the standard shall not be lowered in quality.
- (e) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing, or wading areas. Warning signs shall be posted at locations where human sewage has been identified as temporarily contributing to the enterococcus count.

The draft permit establishes these criteria for recreational areas, as described in Part C. of the draft permit, to be consistent with HAR Section 11-54-8.

**b. Zone of Initial Dilution (ZID) and Zone of Mixing (ZOM)**

The Permittee has requested that the existing ZID and ZOM for the assimilation of treated wastewater from the Mamala Bay be retained. Consistent with the current permit, the existing ZID requested to be retained is 950 feet long and 300 feet wide along the centerline of the diffuser. HAR Chapter 11-54, allows for a ZOM, which is a limited area around outfalls to allow for initial dilution of waste discharges, if the ZOM is in compliance with requirements in HAR Section 11-54-9(c). Consistent with the current permit, the existing ZOM requested to be retained is 2,980 feet long and 2,460 feet

wide along the centerline of the diffuser and extends vertically downward to the ocean floor. Figure 2 in the draft permit shows the ZOM and ZID.

**(1)** Prior to the renewal of a ZOM, the environmental impacts, protected uses of the receiving water, existing natural conditions, character of the effluent, and adequacy of the design of the outfall must be considered. The following findings were considered:

- (a)** The Permittee's ZOM application referenced the Final Environmental Impact Statement Outfall Replacement for WWTP at Fort Kamehameha which indicates that the marine biota along the outfall alignment are characterized by limited biodiversity and low abundance and that only one federally listed species, the green sea turtle frequents the area. The EIS stated that the deep offshore biotope (sand zone) bottom substratum consists of plain grey calcareous sand, surveys of the alignment revealed no coral cover in this area, and that fish communities were also limited to lone individuals, presumably as a result of the lack of shelter in the area. The Final EIS stated that green sea turtles may shelter at the diffuser site which would result in an increased number of sea turtles at that location and that consultation with the USFWS and NMFS resulted in finding no significant impacts to other listed species or coral reef ecosystems were anticipated. The ZOM application indicates that with no changes that would affect this determination since that time, no major physical effects are expected due to the continuation of the ZOM.
- (b)** The diffuser for Outfall Serial No. 001 reportedly provides a minimum of 111:1 dilution and discharges approximately 8,000 feet offshore. The Final EIS referenced in the application states that the long-term discharge of the treated effluent will not be toxic to fish or other aquatic life or create health hazards for the area's recreational users; with the dilution and outfall depth, the potential for the effluent to pose any significant health threat to the public, either through water contact immediately surrounding the outfall or through fish consumption, is extremely low. No information provided in the ZOM application indicates that dilution would be negatively impacted by current conditions. Further, the permit requires the Permittee to conduct a ZOM Dilution Analysis Study to evaluate the available dilution at the edge of the ZOM.
- (c)** The Permittee's application and DMRs indicates that, based on monitoring data on the existing chemical environment, there seems to

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be no difference in water quality between the ZOM stations and control stations. Therefore, there appears to be no major environmental effects on the receiving water from the discharge.

**(d)** Effluent data and receiving water data are provided in Tables F-2, F-12, and F-20 of this Fact Sheet.

**(2)** HAR Section 11-54-9(c)(5) prohibits the establishment of a ZOM unless the application and supporting information clearly show: that the continuation of the ZOM is in the public interest; the discharge does not substantially endanger human health or safety; compliance with the WQS would produce serious hardships without equal or greater benefits to the public; and the discharge does not violate the basic standards applicable to all waters, will not unreasonably interfere with actual or probable use of water areas for which it is classified, and has received the best degree of treatment or control. The following findings were made in consideration of HAR Section 11-54-9(c)(5):

**(a)** The facility services the U.S. Pacific Command, which is responsible for the entire area from the west coast of the United States to the Middle East. The U.S. Pacific Command is essential in providing stability throughout Asia and protecting American interest in the Pacific Region. This stability ensures economic vitality in America. Locally, the Department of Defense at Pearl Harbor Naval Complex provides employment to tens of thousands of civilian and military personnel. Secondary economic benefits include major undertakings such as the public-private joint ventures for military housing, and the proposed development of Ford Island. Approximately 54% of the total wastewater volume treated is base domestic sewage (servicing around 40,000 people) and is a necessity for public health. There are no other treatment facilities currently servicing this area and a cessation of function or operation would cause severe hardship to the residents, workers, and our nation's military.

**(b)** The level of treatment of the discharge and the depth and distance of the outfall offshore does not substantially endanger human health or safety. Results of long-term water quality monitoring does not indicate that the discharge has had an adverse effect on beneficial uses of the receiving waters. No known information indicates that the discharge is causing or contributing to conditions that substantially endanger human health or safety.

- (c) The feasibility and costs to install treatment necessary to meet applicable WQS end-of-pipe, or additional supporting information, were not provided by the Permittee to demonstrate potential hardships. However, based on effluent data, significant Facility enhancements and capital costs would likely be necessary to comply with applicable WQS for which the ZOM was applied. As discussed in Part E.3.c.(2)(a), the operation of the facility has been found to benefit the public as well as our nation's military. No information is known that would revise the finding during the previous permit term that compliance with the applicable WQS without a ZOM would produce serious hardships without equal or greater benefits to the public and our military.
- (d) As discussed in Part D.2.c.(5)(c) of this Fact Sheet, effluent data indicates the presence of pollutants in excess of applicable WQS. However, this permit establishes WQBELs based on WQS. The Permit requires compliance with the effluent limitations and conditions which are protective of the actual and probable uses of the receiving water and implement applicable technology-based effluent limitations.

The DOH has determined that the ZOM satisfies the requirements in HAR Section 11-54-09(c)(5).

The establishment of the ZID and ZOM is subject to the conditions specified in Part D. of the draft permit. The draft permit incorporates receiving water monitoring requirements which the DOH has determined are necessary to evaluate compliance of the Outfall Serial No. 001 discharges with the applicable water quality criteria, as described further in Part F.4. of this Fact Sheet.

## **F. Rationale for Monitoring and Reporting Requirements**

40 CFR 122.41(j) specifies monitoring requirements applicable to all NPDES permits. HAR Section 11-55-28 establishes monitoring requirements applicable to NPDES permits within the State of Hawaii. 40 CFR 122.48 and HAR Section 11-55-28 require that all NPDES permits specify requirements for recording and reporting monitoring results. The principal purposes of a monitoring program are to:

- Document compliance with waste discharge requirements and prohibitions established by the DOH;
- Facilitate self-policing by the Permittee in the prevention and abatement of pollution arising from waste discharge;

- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards; and,
- Prepare water and wastewater quality inventories.

The draft permit establishes monitoring and reporting requirements to implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the draft permit.

### **1. Influent Monitoring**

Influent monitoring is required to determine the effectiveness of source control provisions, assess the performance of treatment facilities, and to evaluate compliance with effluent limitations. Influent monitoring requirements for flow, BOD<sub>5</sub>, conductivity, oil and grease, and TSS have been retained from the previous permit. As stated in the previous permit review, influent monitoring for flow, conductivity, and oil and grease is retained to monitor the potential contribution from non-domestic dischargers to the Facility and to assist in evaluating the applicability of current controls on discharges from these non-domestic dischargers. The proposed influent water monitoring requirements are specified in Part A.1. of the draft permit.

### **2. Effluent Monitoring**

#### **a. Outfall Serial No. 001**

The following monitoring requirements are applicable at Outfall Serial No. 001.

- (1) Monitoring requirements for ammonia, total nitrogen, and total phosphorus are retained from the previous permit to determine compliance with effluent limitations, where applicable, and to enable comparison with the receiving water ZID and ZOM monitoring results to determine if the facility effluent is contributing to elevated concentrations of said pollutants. Monitoring requirements for nitrate + nitrite nitrogen have not been retained in the modified permit, as current DOH implementation uses total nitrogen as a surrogate for nitrate + nitrite nitrogen.



- (2) Monitoring requirements for temperature and turbidity have been added to the draft permit to enable comparison with the receiving water ZID monitoring results to determine if the facility effluent is contributing to elevated concentrations of said pollutants.
- (3) Monitoring requirements for flow have been retained from the previous permit to calculate pollutant loading and to determine compliance with mass-based effluent limitations.
- (4) Monitoring requirements for pH, BOD<sub>5</sub>, enterococcus, oil and grease, TSS, chlorine, and settleable solids have been retained from the previous permit in order to determine compliance with effluent limitations and to collect data for future RPAs. The chlorine compliance monitoring frequency shall be based on the use of chlorine at the Facility.
- (5) Monitoring requirements for DDT have been added to determine compliance with effluent limitations and all other pollutants listed in Appendix 1 are included in order to collect data for future RPAs. Annual effluent monitoring requirements for TTO were removed from Outfall Serial No. 001 as TTO limitations are already applied to the metal finishing operations (TTO limits applied at internal outfalls as specified in the Metal Finishing regulations, 40 CFR 433, where industry studies have shown there is a significant potential for TTO discharge) and the addition of an annual priority pollutant scan (Appendix 1 pollutants) for Outfall Serial No. 001 makes the annual monitoring for TTO duplicative.

**b. Storm Water Monitoring – Outfall Serial No. 002**

All monitoring requirements for storm water have been retained in the modified permit except for nitrate + nitrite nitrogen, from the previous permit in order to determine compliance with storm water limitations and to better characterize storm water discharged into Pearl Harbor. Monitoring requirements for nitrate + nitrite nitrogen have not been retained in the modified permit, as current DOH implementation uses total nitrogen as a surrogate for nitrate + nitrite nitrogen.

### **3. Whole Effluent Toxicity Monitoring**

Consistent with the previous permit, monthly whole effluent toxicity testing is required in order to determine compliance with whole effluent toxicity effluent limitations as specified in Parts A.1. and B. of the draft permit.

### **4. Receiving Water Quality Monitoring Requirements**

#### **a. Regional Monitoring**

The intent of regional monitoring activities is to maximize efforts of all monitoring partners using a cost-effective monitoring design and to best utilize the pooled scientific resources of the region. These monitoring requirements are included in Part E.3 of the draft permit.

#### **b. Offshore Water Quality Monitoring**

The modified permit requires the Permittee to monitor offshore waters at four (4) stations along the boundary of the ZOM, four (4) stations along the boundary of the ZID, and two (2) control stations outside the ZOM. The previous permit had separate monitoring requirements for ZID and ZOM stations. The previous permit required only nitrate + nitrite monitoring for ZOM and control stations. Current DOH implementation policy uses total nitrogen as a surrogate for nitrate + nitrite nitrogen, and therefore, no longer establishes effluent limitations or monitoring requirements for nitrate + nitrite nitrogen. Therefore, nitrate + nitrite monitoring in the ZOM is not retained from the previous permit. The modified permit now requires all previous ZID monitoring parameters to be monitored at both ZOM and ZID stations as well as at the control stations. The increased monitoring parameters at the ZOM monitoring stations will provide more data to characterize the receiving water body water quality at the boundary of the ZOM.

#### **c. Ocean Outfall Monitoring**

At least once during the term of this permit, the Permittee shall inspect the ocean outfall and submit the investigation findings to the Director. The outfall inspection shall include, but not be limited to, an investigation of the structural integrity, operational status, and maintenance needs. The Permittee shall include findings of the inspection to the Director in the annual wastewater pollution prevention report in Part F. of the draft permit for the year the outfall inspection is conducted. This requirement is retained from the previous permit.

**d. ZOM Dilution Analysis Study**

Permit requirements have been based on a limited assessment of assimilative capacity within the receiving water. In the modified permit, the Permittee is no longer required to confirm that assimilative capacity exists for nitrate + nitrite nitrogen. Since DOH's current implementation procedure is to use total nitrogen as a surrogate for nitrate + nitrite nitrogen, and no longer establish effluent limitations or monitoring for nitrate + nitrite nitrogen, confirming assimilative capacity for nitrate + nitrite nitrogen is no longer necessary.

**G. Rationale for Provisions**

**1. Standard Provisions**

The Permittee is required to comply with DOH Standard NPDES Permit Conditions (Version 15), which are included as part of the draft permit.

**2. Monitoring and Reporting Requirements**

The Permittee shall comply with all monitoring and reporting requirements included in the draft permit and in the DOH Standard NPDES Permit Conditions (Version 15).

**3. Special Provisions**

**a. Reopener Provisions**

The draft permit may be modified in accordance with the requirements set forth at 40 CFR 122 and 124, to include appropriate conditions or limitations based on newly available information, or to implement any new state water quality criteria that are approved by the EPA.

**b. Special Studies and Additional Monitoring Requirements**

**(1) Toxicity Reduction Requirement.** The draft permit requires the Permittee to submit an initial investigation Toxicity Reduction Evaluation workplan to the Director and EPA which shall describe steps which the Permittee intends to follow in the event that toxicity is detected. This requirement is retained from the previous permit and is discussed in detail in Part B.5. of the draft permit.

#### **4. Special Provisions for Wastewater Treatment Facilities**

##### **a. Source Control Provisions**

The federal CWA Section 307(b), and federal regulations, 40 CFR 403, require Publically Owned Treatment Works (POTWs) with a total design flow greater than 5 mgd and receiving pollutants which pass through or interfere with the operation of the POTW to establish an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to CWA Sections 307(b), (c), (d), and 402(b), 40 CFR 125, 40 CFR 403, and in HAR Section 11-55-24.

Other circumstances, such as the nature or volume of the industrial influent, treatment process upsets, violations of effluent limitations, contamination of municipal sludge, etc. may warrant the implementation of a source control program in order to prevent interference or pass through.

The NAVFAC HI WWTP has a design flow of over 5 mgd (13 mgd) but is not a POTW. Although the Facility is a federally owned treatment plant, the Navy has been implementing a sewer discharge permit system to control discharges into the WWTP. In 1989, the Commander of the Navy Region Hawaii issued COMNAVREG Instruction 11345.5 establishing a sewer discharge permit system for industrial wastewaters into the JBPHH sewer service area. In 2013, the Commander of the Navy Region Hawaii issued COMNAVREG Instruction 11345.2D establishing wastewater discharge limitations for industrial wastewaters into the JBPHH sewer service area. Under the authority of the COMNAVREG Instructions, NAVFAC has been issuing wastewater discharge certificates to each non-domestic source establishing the specific terms allowing discharge of non-domestic wastewater into the domestic sewers.

Records and previous inspections (see above) indicate that there have been some exceedances and concern regarding slugs making their way into the treatment plant. To prevent the introduction of pollutants to the treatment system that will interfere with the plant's operation, that could pass untreated through the system and contribute to water quality problems, or otherwise be incompatible with the treatment plant, the draft permit includes a source control program.

HAR Section 11-55-02(a)(3) and (4) states that it is the public policy of this State: to provide that no waste be discharged into any State waters without first being given the degree of treatment necessary to protect the legitimate beneficial uses of the waters; and to provide for the prevention, abatement, and control of new and existing water pollution. As such, the draft permit requires the discharger to complete and implement a source control program to prevent interference and pass through to protect the facility and the receiving waters. The source control program shall include analysis of the methods that could be used to prevent the discharge of pollutants into the WWTP, including application of limitations to industrial or commercial users, pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of pollutants to the WWTP. The draft permit includes requirements for the Permittee to implement a source identification and reduction program.

In addition, the DOH-CWB recognizes that some form of source control is prudent to ensure the efficient operation of the Facility, the safety of Facility staff, and to ensure that pollutants do not pass through the treatment Facility to impair the beneficial uses of the receiving water. The proposed permit includes prohibitions for the discharge of pollutants that may interfere, pass through, or be incompatible with treatment operations, interfere with the use of disposal sludge, or pose a health hazard to personnel.

Pursuant to the draft permit, the Permittee shall implement the necessary legal authorities to monitor and enforce source control standards, restrict discharges of toxic materials to the collection system, and inspect facilities connected to the system.

**UPDATE** As a result of the comments made by the Permittee regarding Part G. of the draft permit, DOH proposes to revise the public notice permit to replace the proposed language with the requirements from the previous permit.

#### **b. Biosolids Requirements**

The use and disposal of biosolids is regulated under federal laws and regulations, including permitting requirements and technical standards included in 40 CFR 503, 257, and 258. The biosolids requirements in the draft permit are in accordance with 40 CFR 257, 258, and 503, are based on the previous permit and are consistent with NPDES permits issued to other Hawaii POTWs.

## 5. Other Special Provisions

- a. **Wastewater Pollution Prevention Program.** The draft permit requires the Permittee to submit a wastewater pollution control plan by April 30 each year. This provision is retained from the previous permit and is required to allow DOH to ensure that the Permittee is operating correctly and attaining maximum treatment of pollutants discharged by considering all aspects of the wastewater treatment system. This provision is included in Part F. of the draft permit.
- b. Wastewater treatment facilities subject to the draft permit shall be supervised and operated by persons possessing certificates of appropriate grade, as determined by the DOH. If such personnel are not available to staff the wastewater treatment facilities, a program to promote such certification shall be developed and enacted by the Permittee. This provision is included in the draft permit to assure that the facility is being operated correctly by personnel trained in proper operation and maintenance and is included in Part J.1. of the draft permit.
- c. The Permittee shall maintain in good working order a sufficient alternate power source for operating the wastewater treatment and disposal facilities. This provision is retained from the previous permit in order to ensure that if a power failure occurs, the facility is well equipped to maintain treatment operations until power resumes. If an alternate power source is not in existence, the draft permit requires the Permittee to halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power. This provision is included in Part J.2. of the draft permit.
- d. **Response to Spill Sewage.** The draft permit requires the Permittee to properly clean up any spill and provide public warnings and limited public access to areas affected by the spill. This provision is retained from the previous permit to ensure that spills are properly cleaned up and do not endanger the public.
- e. **Storm Water Pollution Control Plan (SWPCP).** The proposed storm water runoff discharge conditions and requirements are incorporated in the draft permit based on Appendix B of HAR Chapter 11-55 *NPDES General Permit for Storm Water Associated with Industrial Activities*. Accordingly, the Permittee shall update and implement the most recent SWPCP, as established in the previous permit. The Permittee shall update and implement the SWPCP as specified by the schedule in Part A.4.g. of the draft permit.

## **H. Public Participation**

Persons wishing to comment upon or object to the proposed draft NPDES permit in accordance with HAR Sections 11-55-09(b) and 11-55-09(d), may submit their comments in writing either in person or by mail, to:

Clean Water Branch  
Environmental Management Division  
2827 Waimano Home Road, #225  
Pearl City, Hawaii 96782

Comments on the proposed NPDES permit or a request for public hearing may be submitted to the CWB for a period of 30 calendar days following the date of the public notice. Should the DOH find that a significant degree of public interest exists with respect to the proposed NPDES permit, a public hearing may be held. The permit will become effective a minimum of 30 calendar days after the date of issuance and on the first day of the month.